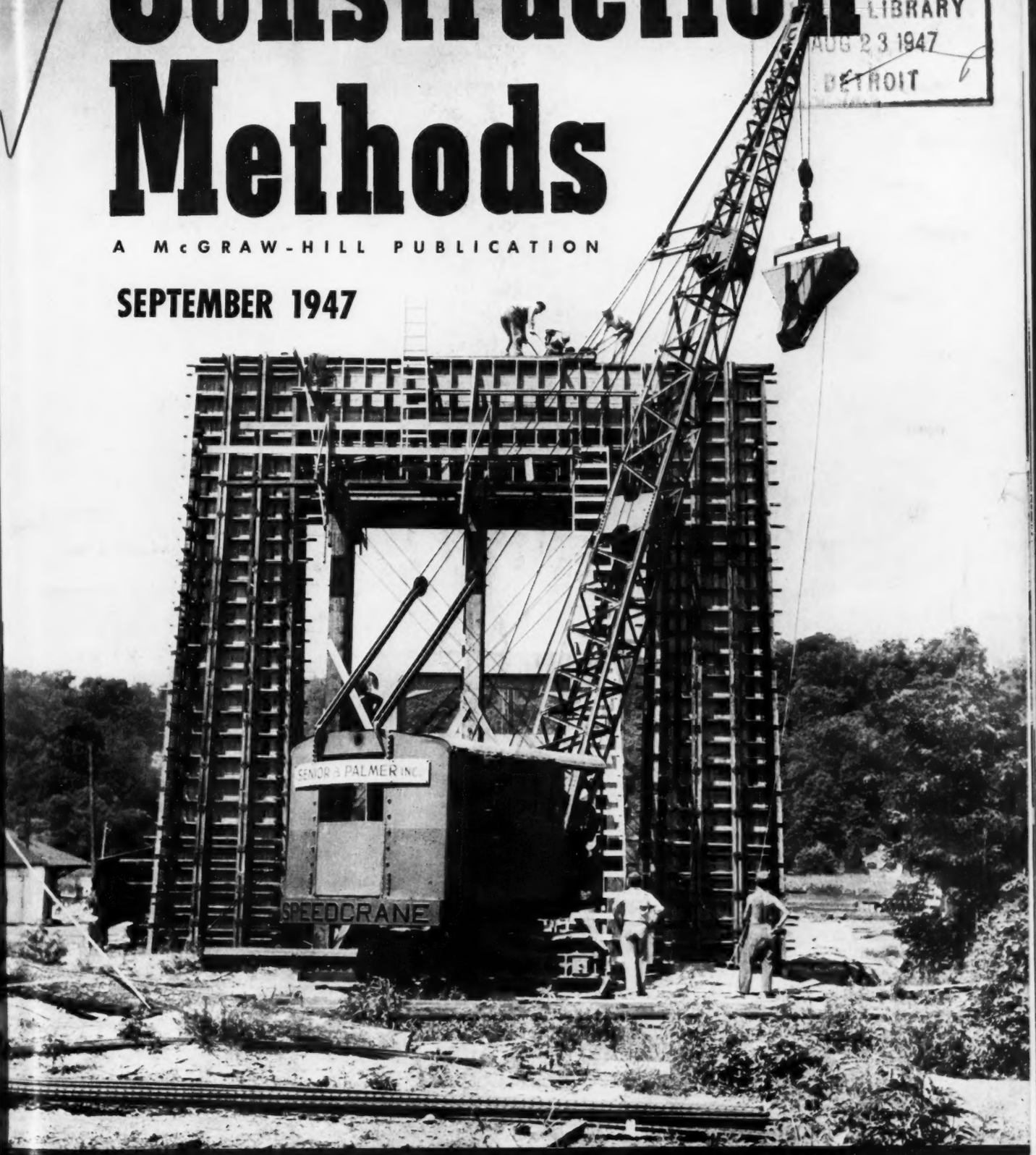
# Construction Methods

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SEPTEMBER 1947




*Crane and bucket place concrete in tall forms made up of full-length plywood panels on Roslyn (N.Y.) viaduct.*

**Patterson Field Paving • Roslyn Viaduct Piers • Mormon Tabernacle Roof**
**Tucumcari Siphon Forms • Winter Drilling for Summer Excavation**



## *Its Greater Bonding Strength means Better Reinforcement*



Two views, showing both sides of a Hi-Bond re-bar, illustrate its reversed helical ribs.

The greater bonding strength of Inland Hi-Bond re-bars is due to their closely spaced, deeply corrugated, reversed helical ribs. This unique design improves the transfer of stresses between steel and concrete and reduces the width of tensile cracks. In addition, Inland Hi-Bond is easier to tie. The ribs interlock with each other when placed side by side or at right angles, so that only one strand of wire is needed to make a firm joint.

The demand for Hi-Bond still greatly exceeds the supply. To make larger tonnages available to you, other steel companies have been licensed to make this superior bar. Write for bulletin. Inland Steel Company, 38 South Dearborn St., Chicago 3, Ill. Offices: Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

# INLAND HI-BOND Reinforcing Bars

INLAND STEEL

OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • PILING • FLOOR PLATE • RAILS • TRACK ACCESSORIES

A. E. PAXTON, *Publisher*

# Construction Methods

WALDO G. BOWMAN, *Editor*

*THE CONSTRUCTION MAGAZINE WITH PICTURE POWER*

Established 1919

HAROLD W. RICHARDSON, *Executive Editor* ROBERT K. TOMLIN, *Managing Editor*

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*San Francisco:* N. A. Bowers • L. L. Wise *Washington:* A. N. Carter

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**SEPTEMBER 1947** Volume 29 • Number 9

## *CUTS AND FILLS*

AN AD in our revered sister publication, "Engineering News-Record," offers a job as construction manager, but only to a person of startling qualifications for, in addition to being a good construction man, he must (exact quotes) "also be capable of estimating jobs from architect's photograph of self in first letter." Probably as good a method as any to work up bid estimates in these days of uncertain labor and materials prices.

EARLY APPLICATIONS for space at the big ARBA Road Show to be held at Soldier Field, Chicago, next July 16-24 indicate exhibits will cover some 800,000 sq. ft., more than four times the space taken at the largest previous show in 1940. Although sponsored by the American Road Builders Association, it will be more than a Road Show—it will be a Construction Show, and no one connected with or interested in construction can afford to miss this gigantic educational spectacle.

CONCRETE COCKTAILS are offered by Al Johnson-Winston Bros.-Kiewit at their Ft. Gibson Dam on Grand River in Oklahoma, where 135 tons of crushed ice are added direct to the concrete mix and another 45 tons of ice cool the mixing water for each day's pour to reduce the heat of hydration and to prevent shrinkage in the massive structure. What a waste of ice! Our trusty slide rule indicates that, at the rate of 2 oz. per glass, 180 tons of ice daily would service 2,880,000 Scotch-and-sodas which, if properly distributed among certain contractor friends of ours, are enough to build a complete Ft. Gibson Dam every night.

HELP WANTED. Our good friend W. R. Macatee of ARBA takes us to task for our terminology of the material under the paving, as described in last month's article on the Maine Turnpike. Seems that what we called subgrade and subbase is not what Mac calls them. We thought we were right until we started digging—into the records, not the Turnpike—and find that the experts fail to agree on this terminology. In fact, the more we dig the more confused we become.

Trouble is that in modern highway practice there may be as many as four classes of material beneath the pavement: (1) Original ground, which may be stripped down to good bearing, replaced with suitable material, or compacted in place; (2) Embankment fill, probably of compacted material; (3) Stabilized material, and (4) Pervious frost-free material to stop travel of capillary water. Trying to designate these four classes by only two terms—subgrade and sub-base—is confusing.

We'll put the question up to the Highway Research Board, but meanwhile, let's hear from you readers as to suggested nomenclature.

ESCALATOR CLAUSE in reverse is the heartening proposal offered by A. Fletcher Marsh, president of Marsh & Truman Lumber Co., Chicago. Under the plan, dubbed "Descalator" for want of a better term, guaranteed top quotations for lumber will be based on anticipated mill costs plus freight and a normal markup. When actual mill prices turn out to be less than anticipated, often the case, a rebate will be passed on to the customer. Fletcher is taking the lead in an effort to reduce construction costs. Somebody somewhere has to start the downward trend of materials prices.

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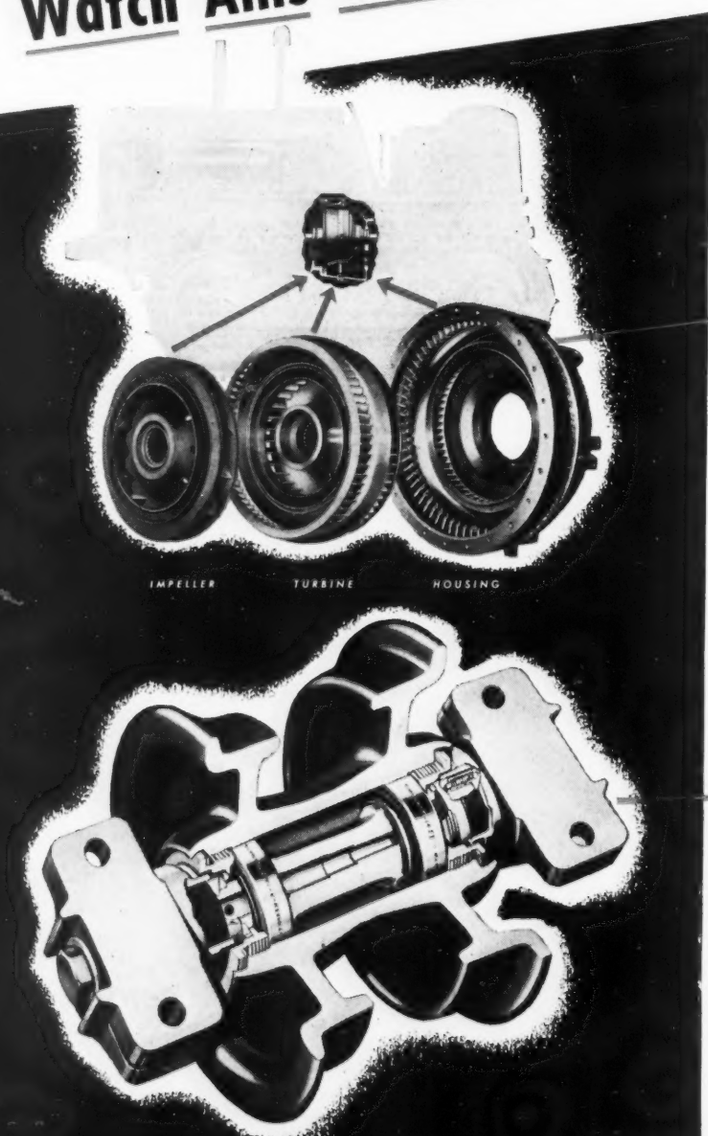
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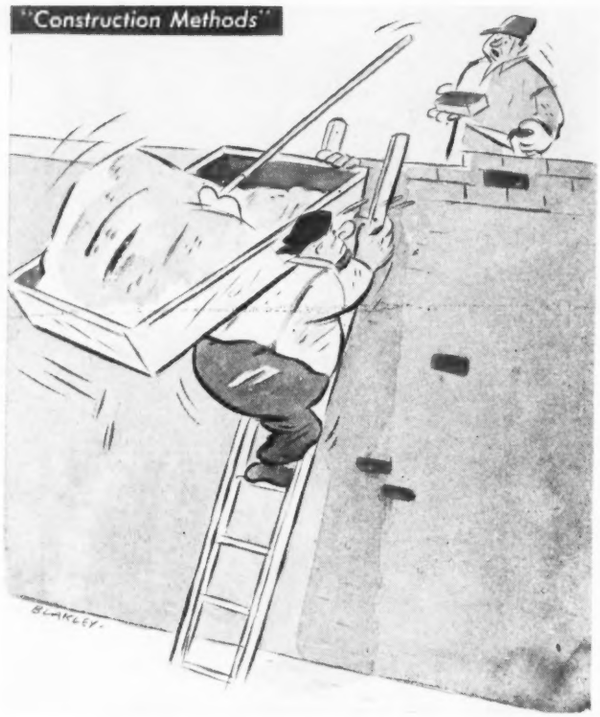
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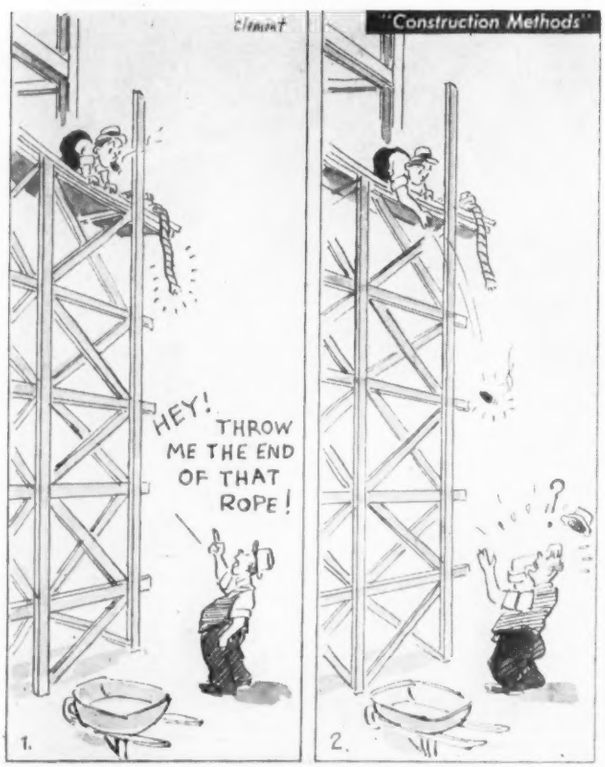
**CARTOONS DRAWN FOR CONSTRUCTION METHODS**




*"No, no, Regan, just a couple of shovels full in a hod!"*




*"Shake it up, Newt. This is serious."*







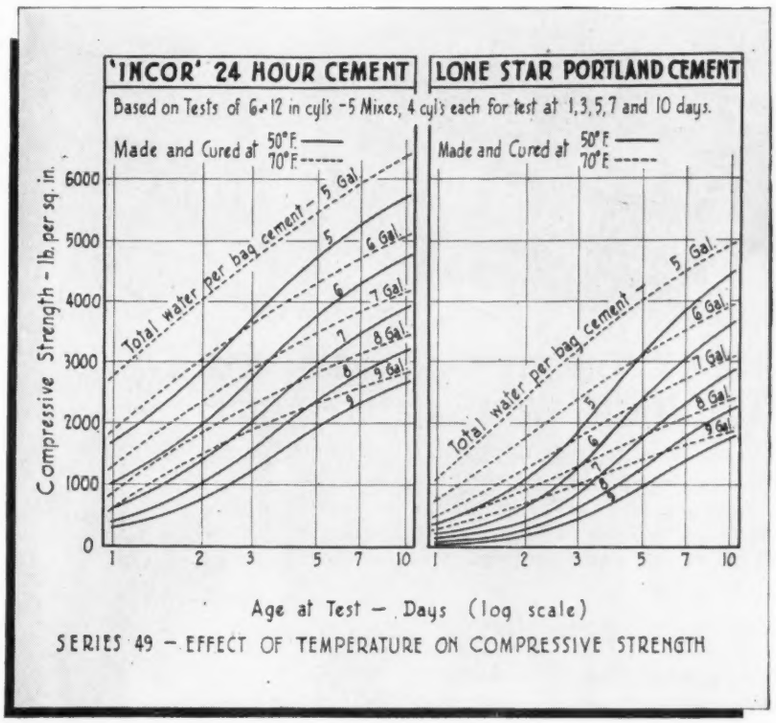
*"Certainly I know there's a leak in my hose. I was going to report it . . . sometime next week."*

WEATHER FORECAST

Mild and Sunny Today, Turning Cool Tonight—Frost Expected

# IT WON'T BE LONG NOW!

## GET SET FOR SUDDEN TEMPERATURE DROPS




SERIES 49 — EFFECT OF TEMPERATURE ON COMPRESSIVE STRENGTH




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USUALLY there's more risk of frost-bitten concrete in the Fall than in the dead of winter. Because, when it gets really cold, the tarps and salamanders are on the job. But in Fall it is apt to be 60° or 65° at noon and 32° or lower by midnight. Daily temperatures, averaging around 50°, retard hardening, slow down the job, and if a sudden freeze does set in, unprotected concrete may suffer.

That's why it pays and pays well to use 'Incor' 24-Hour Cement. At 50°, a common Fall condition, 'Incor' concrete attains stripping strength and is safe from freezing 2 or 3 days sooner than ordinary concrete. By using 'Incor' you maintain construction schedules, prevent job slowdown, and safeguard against frost hazard.

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*Reg. U.S. Pat. Off.

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TEMPOTOOL employs the power of an exploding cartridge to drive "holding studs" into steel or concrete. The tool is fired by pushing the muzzle of the tool sharply against the work.

TEMPOTOOL projectiles have a thin flange around the edge of the head which shears off when the tool is fired. This flange, by momentarily confining the gases of the explosion, builds up the terrific pressure which gives the projectiles their high velocity. Despite this power, recoil is amazingly light.

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**EASY TO USE** — BUILT-IN ANTI-RECOIL MECHANISM

**THOROUGHLY TESTED** — ON MANY DIFFERENT KINDS OF FASTENING JOBS

**NO DRILLING** — SAVES TIME—CUTS WORK FATIGUE

**NO WIRES OR AIR LINES** — CAN BE USED ANYWHERE—WITHOUT NEED OF OUTSIDE POWER

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## NOW AVAILABLE IN THE NEW STREAMLINED MODELS WITH AUTOMATIC TWIN SAFETY FEATURE!

In the short time since its introduction, the amazing new TEMPOTOOL has revolutionized fastening methods in hundreds of construction, installation and maintenance jobs. And just as TEMPOTOOL has improved fastening methods, so we have continued to improve TEMPOTOOL. These brand new models embody special safety and anti-recoil features that still further increase the utility of the tool.

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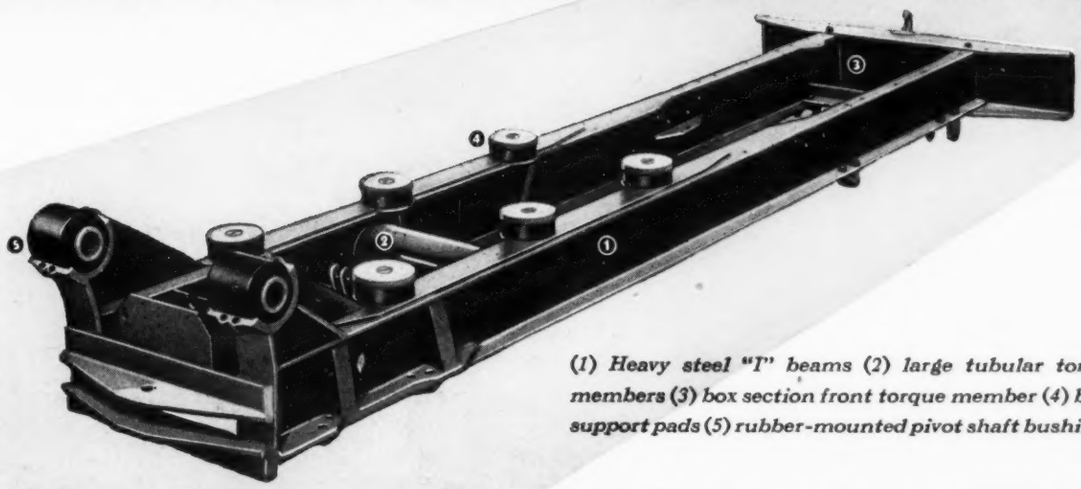
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THE NEW *Powder-Actuated* HAND TOOL

# *Backbone for Big Loads*



## EUCLID Frame has Tremendous Strength




*(1) Heavy steel "I" beams (2) large tubular torque members (3) box section front torque member (4) body support pads (5) rubber-mounted pivot shaft bushings.*



Every part of the Rear-Dump Euclid is designed and built for heavy duty service and long life in off-the-highway work. This job proved performance is the reason why so many leading contractors and industrial users own and prefer Euclid hauling equipment. Your Euclid Distributor, Factory Branch or Representative will be glad to show you how Euclids can increase your production and cut your hauling costs.

● This massive, rigid frame is the backbone of the Rear-Dump Euclid — the off-the-highway truck that has proved its staying power on hundreds of the toughest mine, quarry and construction jobs.

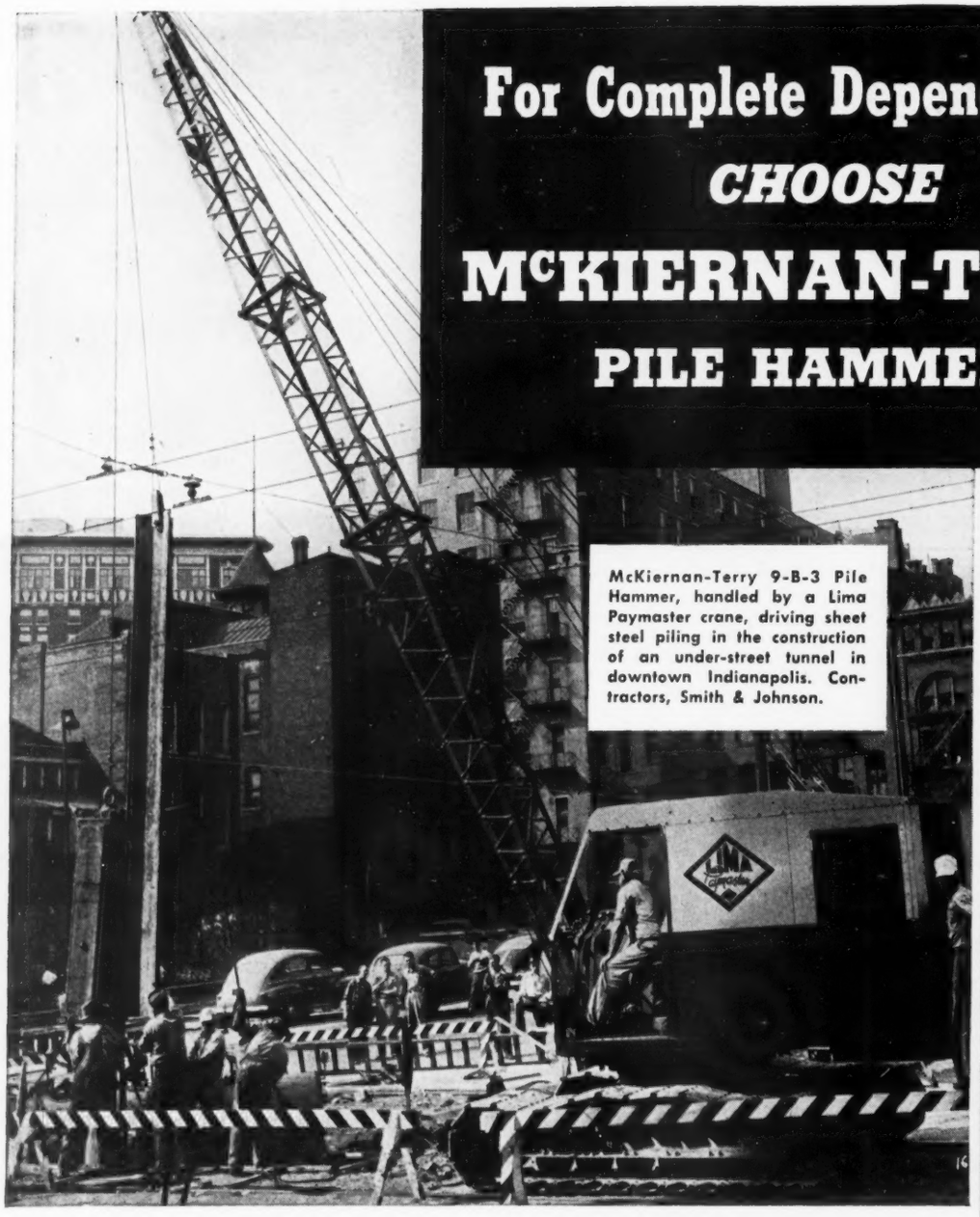
Constructed of wide-flanged, deep-sectioned "I" beams stiffened by large tubular and box section torque members, the Euclid frame is built to last for the life of the truck. Rubber cushions provide for motion between the body and frame, cushioning the impacts of loading heavy excavation and hauling big loads over rough roads. There is no metal to metal contact between the body and frame.

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# The B. F. Goodrich Earth Mover rolls easily in mud, sand, loose dirt

THE B. F. Goodrich Earth Mover's wide, flat tread and special shoulder contour have long made this tire the flotation favorite on scrapers, dirt wagons and trailers. Years ago, B. F. Goodrich engineers dug into the problems of vehicles with free-rolling wheels. They analyzed these special tire requirements and designed a special tire — one with large contact area for maximum flotation; a tire that rolls easily, resists sideslip.

Look at the Earth Mover photo above. See how the large tread surface touches the ground. Note how the special shoulder contour adds to the tread area—helping the tire float over soft earth and mud.

Note, too, the continuous running ribs with no "humps" in the tread design. This gives unusually easy rolling — less power is used. . . . and high mileage performance is obtained on haulage loads and highways. The heavy curb strips along the sidewall protect against scuffing. The sharp edges across the tread surface give positive protection against side slippage.

The "inside" story on the Earth Mover is important, too. Tread rubber, for example, is especially compounded for long, *even wear* and cut resistance. The cord body is 100% weftless rayon —no cross cords to rub, chafe and cause internal heat. Weftless rayon is exclusive with B. F. Goodrich, as is the use of *nylon cord* in the Earth Mover's protecrive breaker strips. Nylon, strong and elastic, provides extra bruise resistance and protection against breaks when tires strike ruts, boulders, timbers and other obstructions.

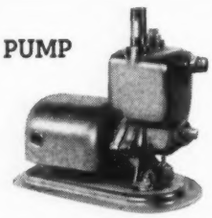
Users of the Earth Mover and other special B. F. Goodrich tires report longer tire wear, time savings and lowered repair bills. Delays are reduced. It's a safe bet that you, too, will make savings with B. F. Goodrich tires that suit *your* needs. See the B. F. Goodrich dealer or write direct to *The B. F. Goodrich Company, Akron, Ohio.*

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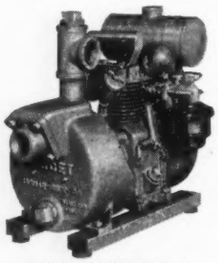
**B. F. Goodrich**

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**THE HANDY PUMP**



Fitted with pipe or common garden hose, this pump will lift water up to 25 feet. Delivers 8 gal. per min. at 40 lbs. pressure. Electric motor driven -- self priming -- weighs only 20 lbs.



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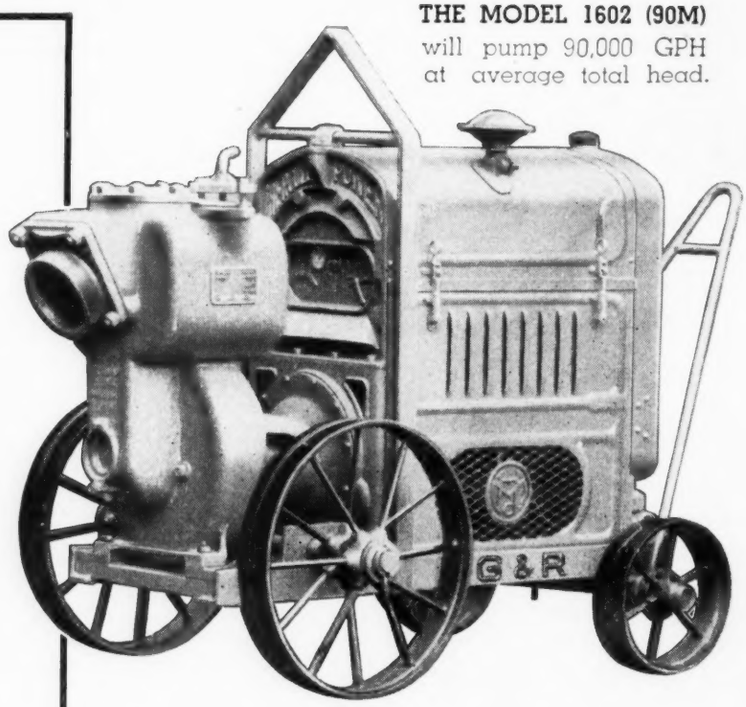
The Midget can do hundreds of handy pumping jobs. 3000 GPH at 20 ft. head, 5 ft. suction lift; -- and it weighs only 60 lbs.




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will pump 90,000 GPH at average total head.




**Gorman-Rupps are the simplest, most rugged design of any self-priming centrifugal pump made. They are engineered to give the best performance possible under any and all conditions and to assure continuous trouble-free service for a long period of time.**

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**308 N. BOWMAN STREET • MANSFIELD, OHIO**

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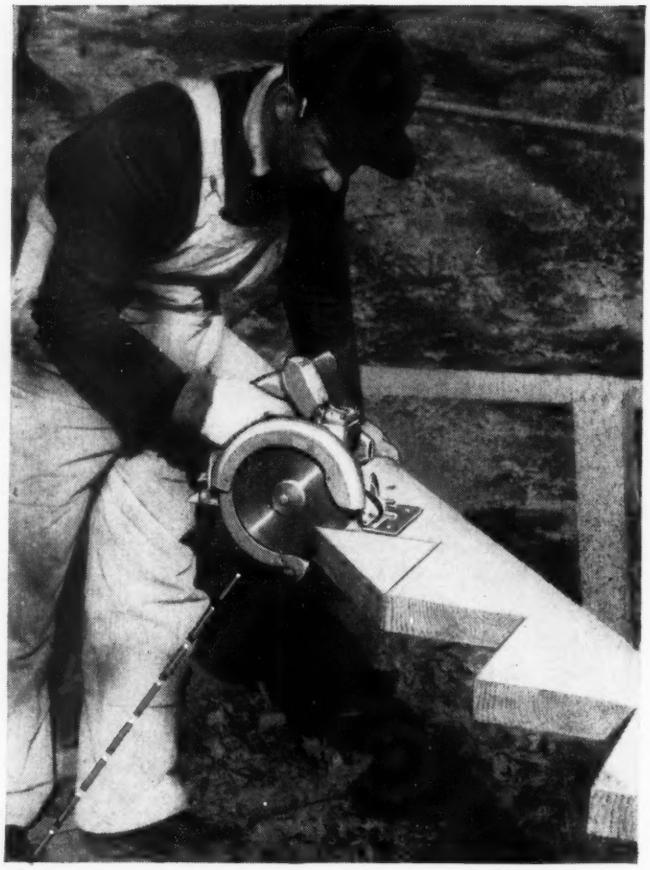
Still the Standard toward which others build!

If you have a REAL ROCK SHOVEL you won't have to worry about output in dirt

# NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

# 1 hand does the work of 10!



**Black & Decker 8" "QUICK SAW"* ideal for one-hand operation, 10 times faster than hand sawing in many construction jobs!**

You haven't seen anything until you've watched a Black & Decker 8" Quick-Saw in action . . . and put it to work saving time and cutting costs on your building and construction jobs! This 8" model is especially suited for one-hand operation because it is close-coupled and perfectly balanced. Like all *work-saving* Quick-Saws, it is:

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**POWERFUL . . .** Heavy-Duty Black & Decker Universal Motor, specially built for tough sawing operations.

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**Cuts to 2 5/8" Depth**
**Also 7" and 9" Models**



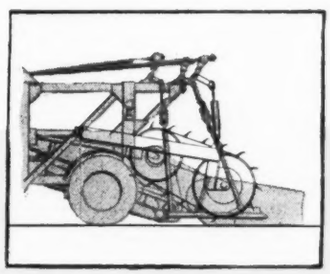

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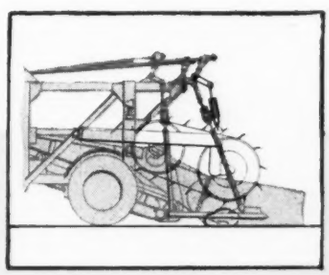
## THE AGE-OLD PROBLEM OF SNOW REMOVAL FROM CITY STREETS

Snow piles in the street and along the curb are hazardous, and costly to business and traffic. You can remove them quickly, easily and at minimum cost with the new Athey Force-Feed Loader. This loader is a self-propelled, hydraulically-operated, one-man loader. It is capable of loading deep, broad windrows up to 10 cu. yd. per minute. Pick-up is clean — because of down-pressure on the moldboards and cutting edge. Snow is loaded into trucks quickly without packing, which eliminates dumping delays.

A one-lane loader, the Athey Force-Feed Loader scoops and loads snow while normal traffic continues.

It is the low-cost answer to removing snow from city streets. It is fully proved — see your nearest Athey-"Caterpillar" Dealer for details. *Athey products are distributed by the world-wide "Caterpillar" sales organization.*





*The exclusive "full-floating" feeder is the secret to better and faster snow loading. Such things as chains, frozen ashes, sticks, cans and other foreign material are readily loaded by the Force-Feed Loader without interruptions.*

Athey Products Corporation, 5631 West 65th Street, Chicago 38, Ill.

**Athey**

**FORCE-FEED LOADERS**

Athey APCOR Products

# STOP RUST

## THIS SURE, SIMPLE WAY

TEXACO *Rustproof Compound,* applied to exposed metal surfaces, effectively prevents rust. More than that – if rust has already started, *Texaco Rustproof Compound* penetrates it, loosens it for easy removal, and prevents any further rusting.

You simply brush *Texaco Rustproof Compound* on the metal you want protected. It forms a waterproof film, soft and self-healing against accidental scratches or breaks. It does not harden or chip off.

*Texaco Rustproof Compound* goes on easily and quickly and is easy to remove when your machines go back into service. It is one of the most economical methods of preventing rust.

Stop rust for sure this winter. Get *Texaco Rustproof Compound* and helpful suggestions for its use from the nearest of the more than 2500 Texaco distributing plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, New York.




**EFFECTIVE PROTECTION FOR METAL EVERYWHERE** Use *Texaco Rustproof Compound* to protect your construction machinery. Gas holders, water works, sewage disposal plants, bridges — wherever metal is exposed to weather or corrosive chemicals and fumes — *Texaco Rustproof Compound* gives protection at low cost. Texaco's 36-page book "Rust Prevention" tells the whole story, offers many money-saving suggestions. Write for your copy today.



Tune in . . .
TEXACO STAR THEATER
presents the
TONY MARTIN SHOW
every Sunday night.
See newspaper for
time and station.

TEXACO

# TEXACO




# Rustproof Compound

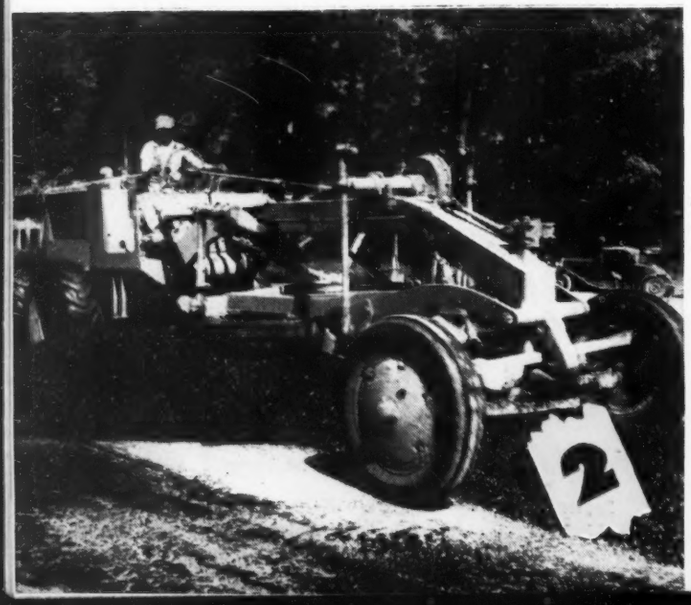
# UTILITY




**1** A "Caterpillar" Diesel No. 12 Motor Grader shapes ditches on a county road in Crawford County, Mich. The big tires give excellent control in sandy soil.

**2** Tullahoma, Tenn., a "Caterpillar" Diesel No. 12 Motor Grader blades cold mix rock asphalt on what is claimed the widest road in the world.

**3** Near Sebeka, Minn., this Wadena County "Caterpillar" Diesel No. 12 is maintaining a stretch of sandy road.






# UNLIMITED

No machines on earth have greater year-round utility in the road-building field than "Caterpillar" Diesel Motor Graders. They were the first machines designed specifically to do the job, and they have increased their margin of leadership for 15 years.

These pictures, chosen from thousands, show the variety of jobs they do superlatively well:

1 **Build and rebuild roads from bank to bank.**

2 **Spread all types of surface materials, including oil mix.**

3 **Maintain every kind of highway that requires maintenance.**

4 **Keep roads clear of snow and ice through the winter months.**

Many owners are frank in their praise of "Caterpillar" Diesel Motor Graders and the dependable work-power they deliver. Here is a statement from Road Supervisor R. H. Parker, of Sevier County, Utah:

"It's the best grader for our work. Its handling ease and low operating cost mean a lot to us. We wouldn't have anything else. It's 'Caterpillar' all the way with us."

And Contractor Ellis Fesler, of Santa Maria, California, says:

"Ease of operation and 'Caterpillar' dependability make our No. 12 Grader an excellent blade for oil-field road work. It enables us to produce first-class roads with a minimum of effort."

**CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS**

### The New No. 12 and No. 112 Motor Graders

**See the new No. 12 and No. 112 Motor Graders, with one-third more horsepower, strengthened design and many mechanical refinements. Their greater work capacity and faster working speeds will mean higher earnings and savings on all types of road jobs.**

**4** Clearing drifts of frozen snow up to 6 feet deep is one of the many efficient jobs done by this No. 12 in Marshall County, Ill.




# CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

**ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT**

# 1-STOP BATCH PLANT SAVES BATCH TRUCKS

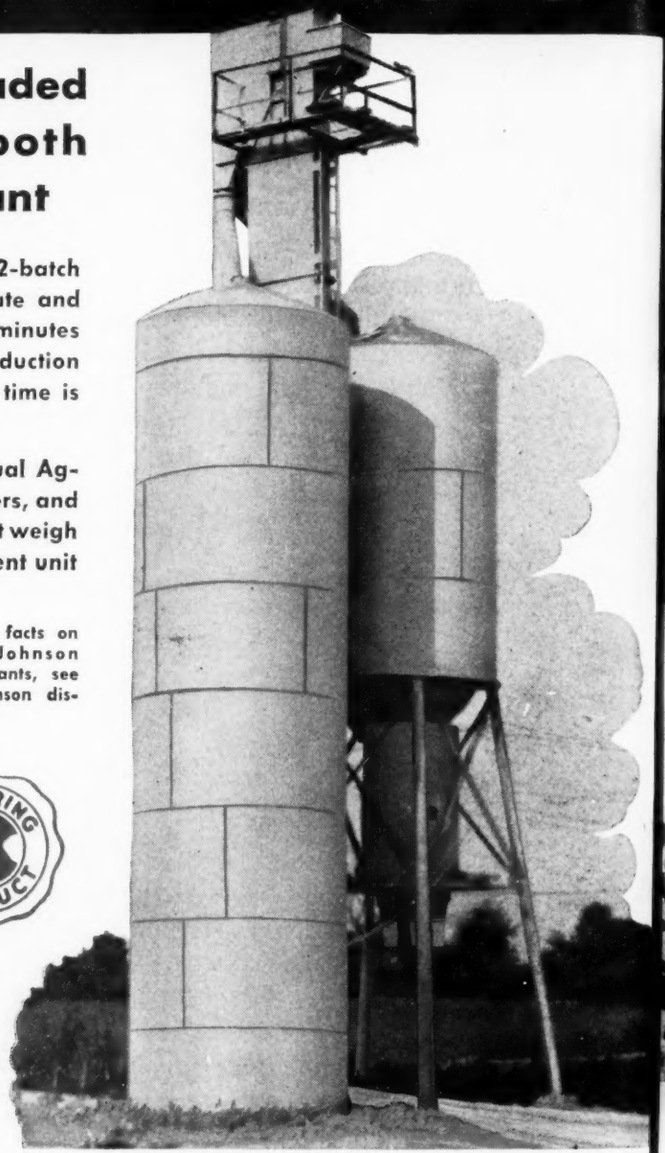
## TWO FULL BATCHES Loaded in ONE OPERATION at both Aggregate and Cement Plant

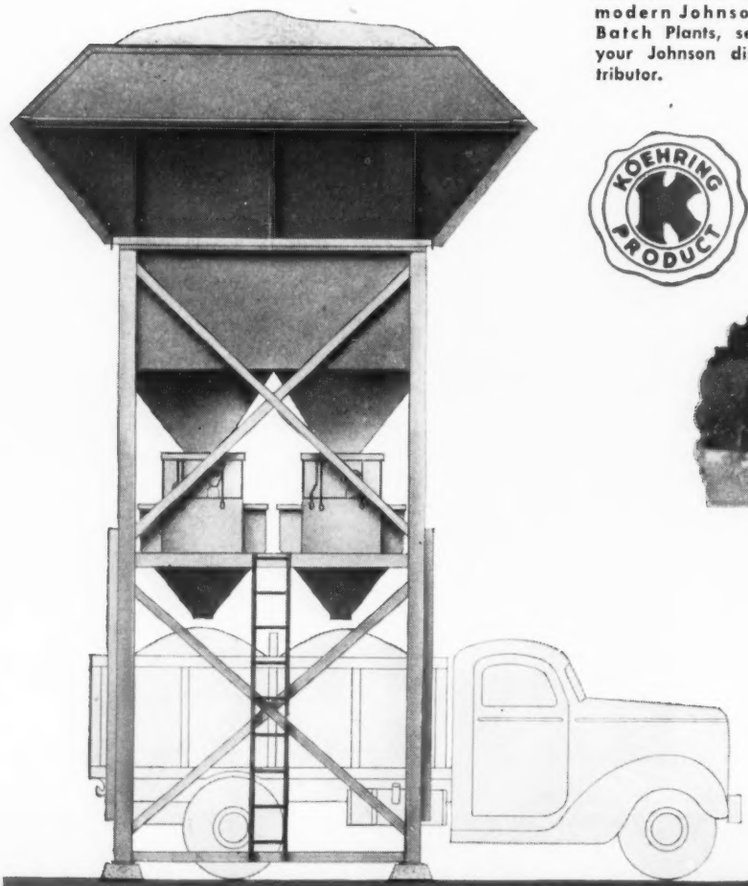
In the Johnson 1-Stop Batch Plant, extra spot stops for 2-batch trucks are eliminated. Loading time for both aggregate and bulk cement is cut in half. Trucks get away to the paver minutes faster. Minutes saved by 1-Stop loading often permit reduction in number of trucks needed to keep paver busy. No time is lost at paver waiting for batch trucks.

Johnson 1-Stop Batch Plants combine new Johnson Dual Aggregate Bin, equipped with two multiple material batchers, and a Johnson Bulk Cement plant, equipped with two cement weigh batchers. Controls of both the aggregate unit and cement unit are grouped for 1-man operation.

For more facts on modern Johnson Batch Plants, see your Johnson distributor.

KOEHRING PRODUCT





**1-STOP LOADING** at bulk cement plant. Cement bin equipped with two weigh batchers. Johnson Twin Silo Bulk Cement Plant shown above stores up to 1,556 barrels of cement, yet is fully portable.

**1-STOP LOADING** at aggregate plant. Johnson Dual Aggregate Batch Plant, equipped with two multiple material batchers, delivers both batches of aggregate simultaneously. 3-Compartment bin, 100-yard capacity.

**THE C. S. JOHNSON COMPANY**

Koehring Subsidiary • • • Champaign, Illinois



JOHNSON DUTCH MILL bulk cement plant is available with storage capacities of 50, 100 and 150 barrels. Fully portable, quickly erected and dismantled.

JOHNSON Road Builders' Single Silo bulk cement plant is of all-welded construction and is available in capacities of 254, 373, 492 and 611 barrels. It is fully portable, quickly erected and dismantled.



## PARSONS 250 TRENCHLINER*



### Straight, Clean Trenches for Sewers, Pipe, Water Mains

Parsons 250 Trenchliner, product of more than 40 years of trencher building experience, incorporates all the desirable features that make money for you on trenching jobs. Telescoping boom for easy depth adjustment. Shifts from side to side across full Trenchliner width. Centralized 1-man controls.

*Reg. Trademark

**PARSONS CO.**
NEWTON, IOWA

## KWIK-MIX DANDIE CONCRETE MIXER



### Tilted Flow-Line Discharge Chute Empties Drum Seconds Faster

Tilted Flow-Line Discharge Chute, exclusive on the Kwik-Mix Dandie line of concrete mixers, reaches deeper into the drum, intercepts tumbling concrete at just the right angle to maintain natural flow-line in discharge. Kwik-Mix Dandie mixers are available in the following sizes: 3½-S, 6-S, 11-S, 16-S.

**KWIK-MIX CO.**
PORT WASHINGTON, WIS.

## KOEHRING 605 CLAMSHELL



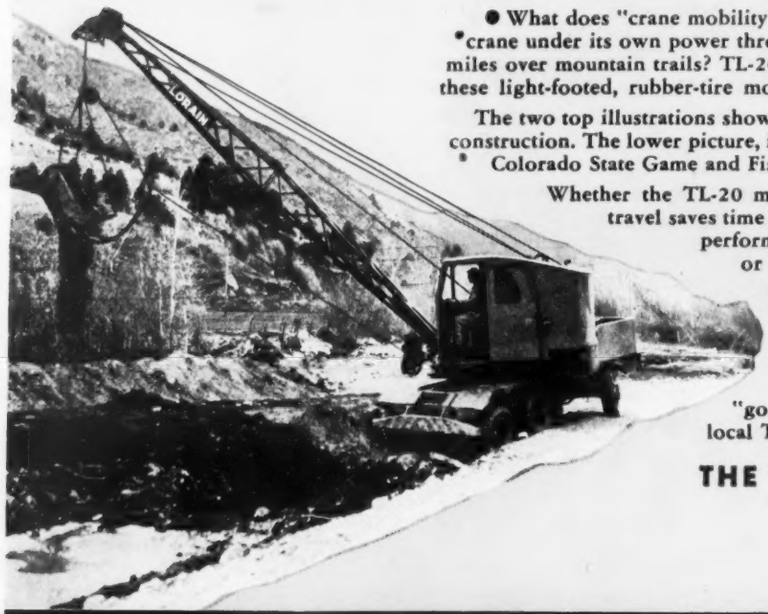
### High Lifting Capacity For Extra Tonnage

High lifting capacity of the Koehring 605 in clamshell work pays off on every cycle — 960 times each 8-hour shift. Swing is fast and smooth. Travel is simplified, easy on the operator, because it's never necessary to move the turntable into a precise travel position. Koehring 605 is ready for travel with turntable in any position.

**KOEHRING CO.**
MILWAUKEE 10, WIS.




**TL-20 Mobility pays off both in crowded city and wide open spaces**




● What does "crane mobility" mean to you? The ability to "shoe horn" a crane under its own power through a crowded city street or to travel many miles over mountain trails? TL-20 owners are doing both to cover jobs with these light-footed, rubber-tire mounted units.

The two top illustrations show TL-20's at work on New York City subway construction. The lower picture, in direct contrast, shows a similar unit of the Colorado State Game and Fish Dept. digging a fish pond.

Whether the TL-20 moves blocks or miles in a day, rubber-tire travel saves time and money between jobs—and its on-the-job performance as a shovel, crane, clamshell, dragline or hoe will add to these savings through fast, efficient operation.

The TL-20 offers a choice of 9 rubber-tire mountings plus a score of outstanding shovel and crane construction features. For complete information on this proved "go-getter" in the ½ yd. class, write or call your local Thew-Lorain distributor.

**THE THEW SHOVEL COMPANY**
**LORAIN, OHIO**

**Lorain® TL-20 Thew Lorain**

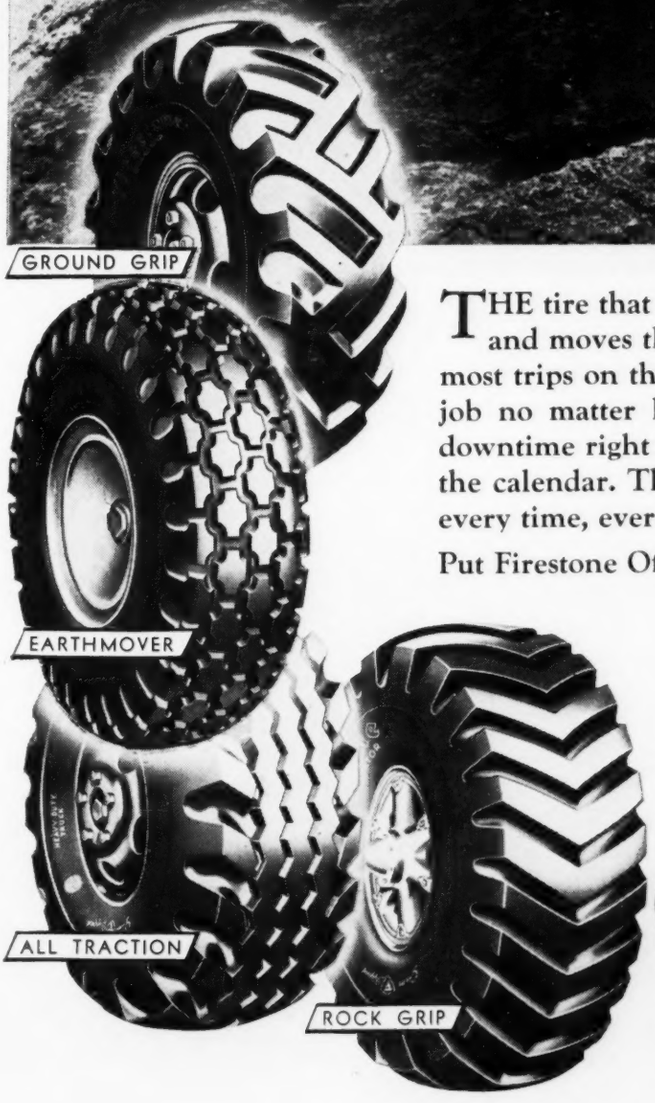
# Where Extra Traction Means Extra Dollars—

## THEY CHOOSE THE FAMOUS

# Firestone

## GROUND GRIP






THE tire that pays off on the job is the tire that digs in and moves the most dirt . . . or rock . . . or makes the most trips on the haul road. It's the tire that stays on the job no matter how tough the going; the tire that cuts downtime right to the bone — around the clock — across the calendar. That's the Firestone Off-the-Highway Tire, every time, everywhere.

Put Firestone Off-the-Highway Tires on your jobs and let us show you how Firestone Project Service will keep them there, operating at minimum cost.

For further details, and without obligation, write The Firestone Tire & Rubber Company, Akron 17, Ohio.

*Listen to the Voice of Firestone every Monday evening over NBC*

**Firestone**
**OFF-THE-HIGHWAY TIRES**




## the NEW LaPlant-Choate high-speed

**Speeds:** 4 forward, 1 reverse
2.76 to 18.00 m.p.h.
(Conservative rating)

**Engine:** Buda Supercharged Model 6-DCS-844
225 h.p. at 1800 r.p.m.
6 cylinders
844.2 cu. in. piston displacement

**Gasoline starting engine, 60 h.p.**

**Steering:** Finger-tip, positive hydraulic steering eliminates jackknifing. 27′ level turning radius. 60 degree turn each way.

**Capacity:** 14 yards struck
17.5 yards heaped

**Tires:** 21:00 x 29
Interchangeable front and rear.

**Brakes:** Four heavy-duty Timken-Detroit air brakes. May be applied to all four wheels simultaneously or to rear wheels only as operator desires.

**Low center of gravity**

**Modern LPC Scraper:** Curved reinforced bottom; 3-piece offset cutting edge; positive forced ejection; 103″ apron opening; open top for easy loading by shovel or dragline; axles supported at both ends for maximum strength; heavy-duty, self-aligning type pusher block; sheaves and cables out of the dirt.

**Dimensions:** Over-all length 34′10″; over-all width 11′5″; over-all height 9′3½″; wheel base 21′4⅜″; wheel tread (front and rear) 88″. Weight empty approximately 42,500 lbs.

See your nearest LaPlant-Choate distributor for performance data and delivery dates. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa; 1022 77th Ave., Oakland 3, Calif.

# LaPLANT CHOATE

**HIGH SPEED EARTHMOVING**

FOR LOWEST POSSIBLE COST PER YARD..PER JOB..PER YEAR

# -SCRAPER



EARTHMOVER



225 H. P. RUBBER-TIRED TRACTOR



2

RUGGED CONSTRUCTION



POSITIVE FORCED EJECTION



4

POSITIVE HYDRAULIC STEERING

PRODUCT OF IOWA

1. In the new LPC Moto-Scraper, there's plenty of power in the big engine and plenty of traction and flotation in the huge tires for the highest average haul speeds with heaped loads over all kinds of terrain.

2. Modern LPC scrapers — proved by competitive tests to be the easiest loading, fastest spreading scrapers on the market—will make even more profit for you in these new high speed Moto-Scrapers.

3. LPC positive forced ejection quickly and easily spreads all your loads whether you're handling dirt, sand or mud and sticky gumbo, and will do it in high gear to save valuable seconds on every trip.

4. Tractor and scraper are joined by pedestal hitch. With LaPlant-Choate positive hydraulic steering 60° turns each way are quickly and easily accomplished with power on both wheels.

OST
EAR

#3
IN A SERIES

Moving forward with America's leaders
in a mighty era of construction
to build a greater America . . .

# KIMBERLY-CLARK INSTALLATION PLACED IN McGRAW HANDS

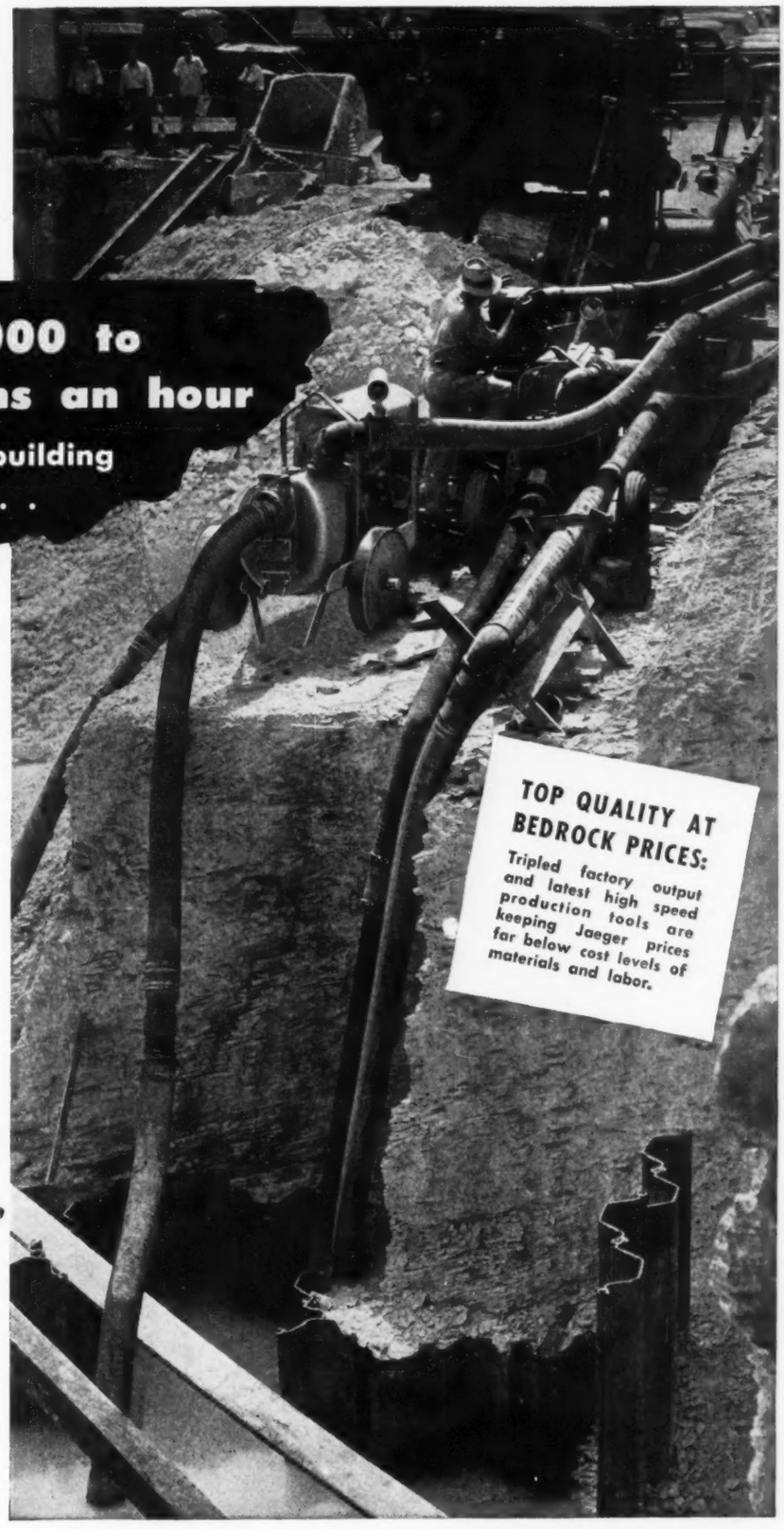
HARTFORD, CONN.—The Kimberly-Clark Corporation has awarded a contract to F. H. McGraw & Company, engineers and constructors of this city, for machinery installation at Memphis, Tenn. According to F. H. McGraw & Company, the Kimberly-Clark Corporation has in the past performed such mechanical installation with its own forces. This contract calls for the installation of two crepe wadding machines and auxiliaries, plus all necessary electrical, piping, sheet metal and insulation work.

Reprinted with permission from "Paper Trade Journal," June 19, 1947

F. H. McGRAW & COMPANY
ENGINEERS AND CONSTRUCTORS
780 WINDSOR STREET · HARTFORD 1, CONN.

NEW YORK, N. Y. · CHICAGO, ILL. · GARY, IND. · MIDDLETOWN, O. · PITTSBURGH, PA. · ST. LOUIS, MO.

**Battery of 4 Jaegers worked 24 hours a day to dewater elevator pit excavation 12 ft. below low water table, at rate of 400,000 to 500,000 g.p.h.—one of many Jaeger pumping jobs on Burdine's new $1,000,000 store at Miami, Fla.**

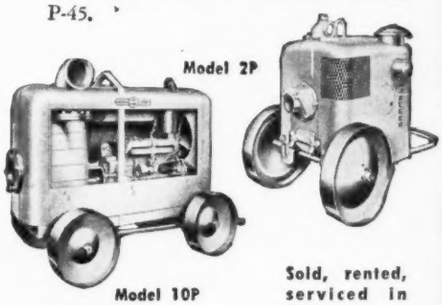



# pumping 400,000 to 500,000 gallons an hour

## when a million dollar building can't wait on water . . .

Whenever water problems are encountered, on jobs that can't risk waiting, there's usually a hurry-call for the nearest Jaeger distributor.

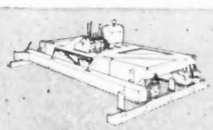
He's the leading pump dealer in your locality. He keeps a big stock of pumps and fittings ready — for sale or rent. And they are all Jaeger "Sure Primes," built and powered beyond their guaranteed performance, individually tested and certified, doubly sure and faster to prime, and fully enclosed from dirt and weather to keep both pump and engine operating at top efficiency for years of extra-satisfactory service. Sizes 1½" to 10". Ask for complete Catalog P-45.




**Sold, rented, serviced in 128 cities.**

**THE JAEGER MACHINE CO.**
Main Office, Factory: Columbus, Ohio

REGIONAL OFFICES
8 E. 48th St. NEW YORK 17, N. Y.
226 N. La Salle St. CHICAGO 1, ILL.
235-38 Martin Bldg., BIRMINGHAM 1, ALA.


Spreaders, Finishers


Concrete Mixers


Compressors

**JAEGER** *Engineered* **EQUIPMENT**

Truck Mixers • Hoists • Concrete and Bituminous Paving Equipment

# Barber-Greene

## *FIRST! because they LAST!*

The on-the-job lasting ability that identifies B-G Standardized Belt Conveyors is in large part due to these B-G all-welded tubular steel belt carriers. Protected from dust and grit by "four-pass" grease seals, their bearings—roller, ball or plain as the job requires—keep them rolling smoothly with minimum maintenance.

Heavy die-formed support brackets are welded to the self-cleaning base. And along with Barber-Greene sturdiness, B-G Belt Conveyors bring you the advantages of standardized design: selection of the right one for the job and erection on the job are simplified. See your Barber-Greene distributor or write Barber-Greene Company, Aurora, Illinois.



BARBER-GREENE COMPANY · AURORA, ILLINOIS

*Constant Flow Equipment*



LOADERS · PERMANENT CONVEYORS · PORTABLE CONVEYORS · COAL MACHINES · BITUMINOUS PLANTS · FINISHERS · DITCHERS

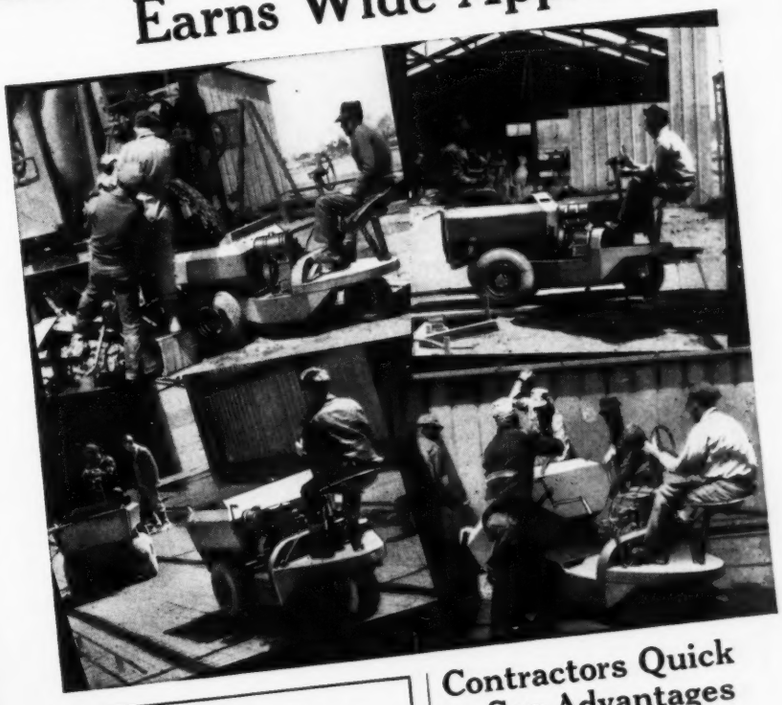
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ARIZONA
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ARKANSAS
North Little Rock—STANDARD EQUIP. and SUPPLY CO.
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Oakland and Eureka—BURAN EQUIP. CO.
Los Angeles—CARLINGHOUSE BROTHERS
COLORADO
Denver—GUNDERSON-KRINGEL CO.
CONNECTICUT
Stamford—M. F. TAYLOR CONSTRUCTION EQUIPMENT & SUPPLIES
FLORIDA
Jacksonville—FARQUHAR MACHINERY CO.
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Mt. Vernon—ED MEYER TRACTOR COMPANY
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Indianapolis—BOCK EQUIPMENT CO.
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Portland—EASTERN TRACTOR & EQUIP. CO.
Presque Isle—ROY C. THOMPSON CO.
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Baltimore—MARYLAND SUPPLY & EQUIP. CO.
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MISSOURI
Kansas City—CONTRACTORS SUPPLY CO.
St. Louis—MISSOURI-ILLINOIS TRACTOR & EQUIPMENT CO.
MONTANA
Butte and Great Falls—MONTANA HARDWARE CO.
NEBRASKA
Omaha—FEHRS TRACTOR & EQUIP. CO.
NEVADA
Reno—NEVADA TRUCK SALES
NEW JERSEY
Essex—SMITH TRACTOR & EQUIP. CO.
NEW MEXICO
Albuquerque—HARRY CORNELIUS CO.
NEW YORK
Albany—SLADE TRACTOR & EQUIPMENT CO.
Buffalo—FOX EQUIPMENT CO.
New York—H. O. PENN MACHINERY CO.
Rochester—HAVERSTICK & CO.
Utica—CREBLE EQUIPMENT CO.
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Charlotte—CONTRACTORS SERVICE, INC.
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Salt Lake City—THE LANG CO., INC.
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Park Falls—STEIGER MOTOR SALES
ALASKA
Anchorage—NORTHERN ENGINEERING & EQUIPMENT CO.


# NOVO NEWS

SEPTEMBER, 1947

## Mechanized Wheelbarrow Earns Wide Approval!



### Countless Uses

Among companies which have found uses for the Scootruk are the following:

- Aircraft Manufacturers
- Airports
- Brick Yards
- Building Demolishers
- Cement Plants
- Cemeteries
- Chemical Plants
- Coal Companies
- Construction Projects
- Distillers
- Docks
- Estates
- Farms
- Fertilizer Plants
- Foundries
- Golf Courses
- Gravel Plants
- Green Houses
- Lime Plants
- Metal Refinishers
- Nurseries
- Parks
- Sand Pits
- Smelters
- Steel Mills
- Sugar Refineries
- Warehouses

### Contractors Quick to See Advantages of Novo Scootruk

The Scootruk finds it easy to make friends and influence people. Contractors using this miniature dump truck swear by it.

They like it because it releases 5 to 8 men for other work . . . because it lugs a full ton of wet concrete or practically any building material . . . because it zooms along at 15 miles per hour . . . because it turns at almost a right angle . . . because it climbs steep grades without stopping for a second breath . . . because it glides over soft ground or scoots along scaffolds.

The Scootruk takes a lot of punishment without grumbling—it's built like the Rock of Gibraltar. Power is furnished by 6 HP, air-cooled Novo engine with a four-speed and reverse transmission.

Allied Member of A.E.D.

NOVO
ENGINE COMPANY
LANSING 9, MICH. U.S.A.
CONTRACTOR'S EQUIPMENT
· GRAY IRON CASTINGS ·
ENGINES

MEMO

TO STOCK PILE OPERATORS

of Sand—Gravel—Crushed Rock
and Coal—Top Soil or Mill Tailings

*Immediate Delivery!*

on Model 75 Haiss Loaders from Chicago or New York

## HIGH SPEED LOADING

**means Greater Yardage handled per truck per day!**

You can't beat the STRAIGHT LINE CONTINUOUS LOADING principle of the Haiss bucket loader. This machine will handle 3 times the yardage of machines that sell for double its price. Engineered end to end . . . top to bottom . . . featuring a rugged, oil-bath-enclosed transmission that can "take it" . . . and manganese steel digging blades for hard abuse . . . you can count on Haiss for mechanical reliability. Complete information will be sent promptly upon request to

**PETTIBONE MULLIKEN CORPORATION**
Chicago 51, Illinois

Model 75W Haiss Loader—3 yds. per minute capacity. Also with crawler tread mounting as Model 75C.




**PROMPT DELIVERY ON**
**Larger Capacity Sizes**

**MODEL 77**
with high elevator
3 yds. per min.

**MODEL 80**
5 yds. per min.

**MODEL 135**
8 yds. per min.

HAISS

A PETTIBONE MULLIKEN PRODUCT

*"Quality Since 1880"*

# PETTIBONE MULLIKEN CORPORATION

Conveyors • Material Handling Pumps • Dragline and Clamshell Buckets • Shovel and Pull Shovel Dippers




IN 1519, Ferdinand Magellan set sail in five antiquated vessels in an attempt to circle the globe. He died before the voyage was completed although one of the ships did win through after three years of hardship. With power, even in its most elementary form, Magellan might have lived to see the success of his great adventure.

It was nearly three centuries until the successful voyage of "Fulton's Folly" proved that power at sea was practical. Since then, it has made giant strides of progress and in a short half century, Diesel engines have found an ever-growing usefulness.

Today, internal-combustion engines of all kinds are serving the world in its struggle for reconstruction.

AMERICAN BOSCH CORPORATION SPRINGFIELD 7, MASS.




## SERVING POWER

American Bosch serves the internal-combustion-engine industry in three vital ways:

**ENGINEERING.** 1,200,000 *man-hours* of it have been poured into Diesel fuel injection alone—other millions into ignition.

**PRODUCTION.** *Premium performance* has been a consistent goal in the production of hundreds of thousands of Diesel injection systems and millions of electrical units.

**MAINTENANCE.** *The world over,* American Bosch authorized service stations keep the equipment operating efficiently.

# AMERICAN BOSCH

**PARTNERS IN THE PROGRESS OF POWER**

DIESEL FUEL INJECTION • AUTOMOTIVE AND AVIATION ELECTRICAL PRODUCTS




# Lower Excavation Costs

YOU CAN COUNT ON minimum excavation costs with Transite* Sewer Pipe because Transite has an exceptionally high flow capacity (n=.010). This often permits the use of flatter grades and shallower trenches. This is a particularly important advantage where rock excavation is involved or where the pipe must be laid at or below the ground water line.

As an alternate economy, designers often take advantage of Transite's high flow capacity by specifying smaller diameter pipe.

**Transite Offers Other Economies, Too.** Right from the start, this pipe helps you cut sewage disposal costs. Transite's long 13-foot lengths and light weight mean lower handling costs. And fewer joints to assemble in the finished line result in faster, more economical installation.

**Transite Reduces Treatment Costs.** As a further economy, tight sleeve-type joints guard effectively against infiltration . . . reduce the load on the treatment plant. Thus, treatment costs are kept low . . . and plant capacity can be conserved for the increased loads incident to future community growth.

**Transite Cuts Maintenance Costs.** Made of asbestos and cement combined into a homogeneous material of great stability, Transite Sewer Pipe is corrosion-resistant both inside and outside. Tight joints safeguard against root trouble. And every Transite length is factory-tested for strength and uniformity. This adds up to low annual maintenance costs through the years.

**Get All The Facts About Transite.** If you are seeking ways to lower sewage disposal costs, you'll be interested in the many economies Transite Sewer Pipe can offer you. Send for free brochure containing further engineering data. Address Johns-Manville, Box 290, New York 16, N. Y.

* Reg. U. S. Pat. Off.

**Johns-Manville**

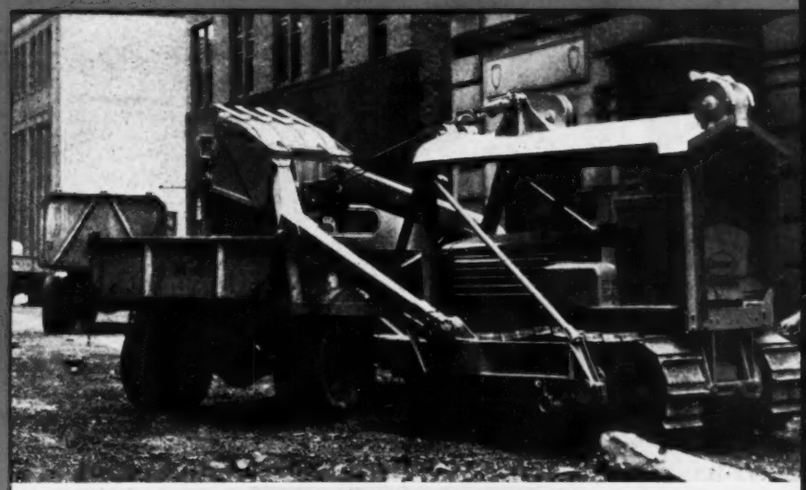
JOHNS-MANVILLE JM PRODUCTS

**Transite Sewer Pipe**

# NOW YOU CAN BUY THESE 3 FOR A MONEY-MAKING TEAM

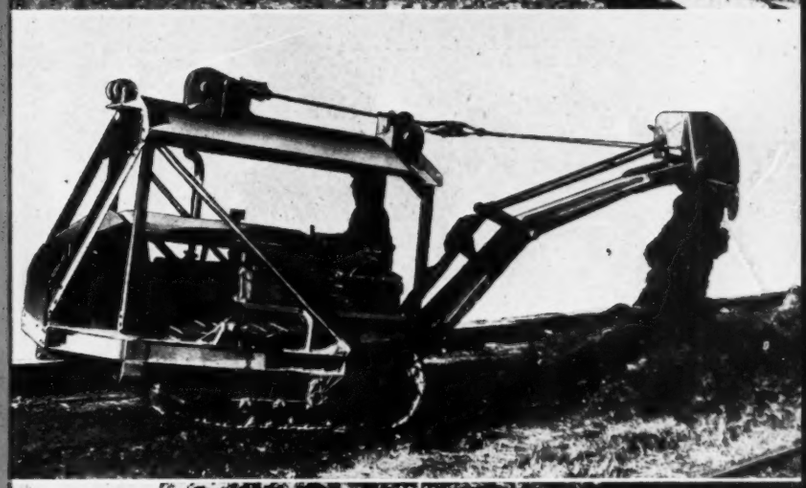
## THE SARGENT OVERHEAD

This is the basic unit and is primarily a fast, rugged and dependable shovel powered by a standard crawler tractor. It will excavate and load loose or hard and frozen materials. The Overhead shovel has a direct straight-line action, with no twisting and turning; this saves tractor upkeep and time.



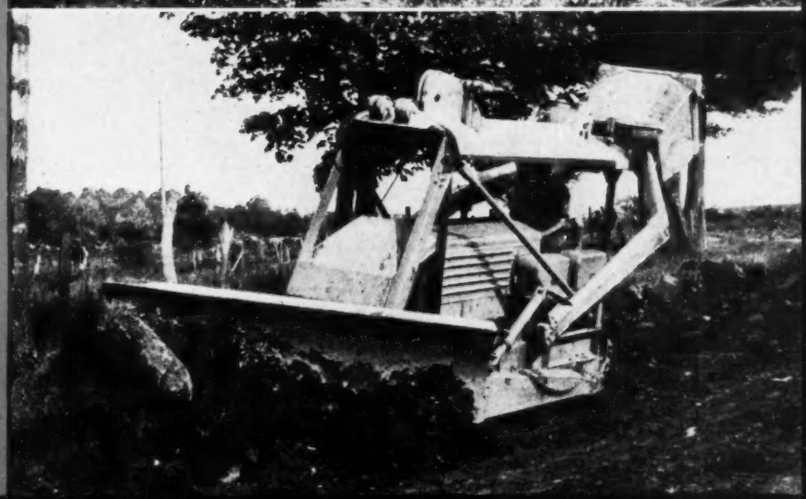
## THE BACKHOE

An accessory to the Overhead Shovel . . . It will excavate a trench up to 7 or 8 ft. in depth through gravel, clay, shale, or boulders at a fast rate of speed . . . The shovel bucket and arms can be detached and the backhoe attached in about 1½ hours . . . It is operated by the full power of the crawler tractor.



## THE BULLDOZER

Also an accessory to the Overhead Shovel, the bulldozer or bullgrader, can be attached in ½ hour and used for grading new roads, backfilling trenches, stripping coal, light excavation or wherever a bulldozer is needed. Because of its design it has plenty of down pressure.



*Manufactured by*

**MAINE STEEL, INC.**

SOUTH WINDHAM MAINE

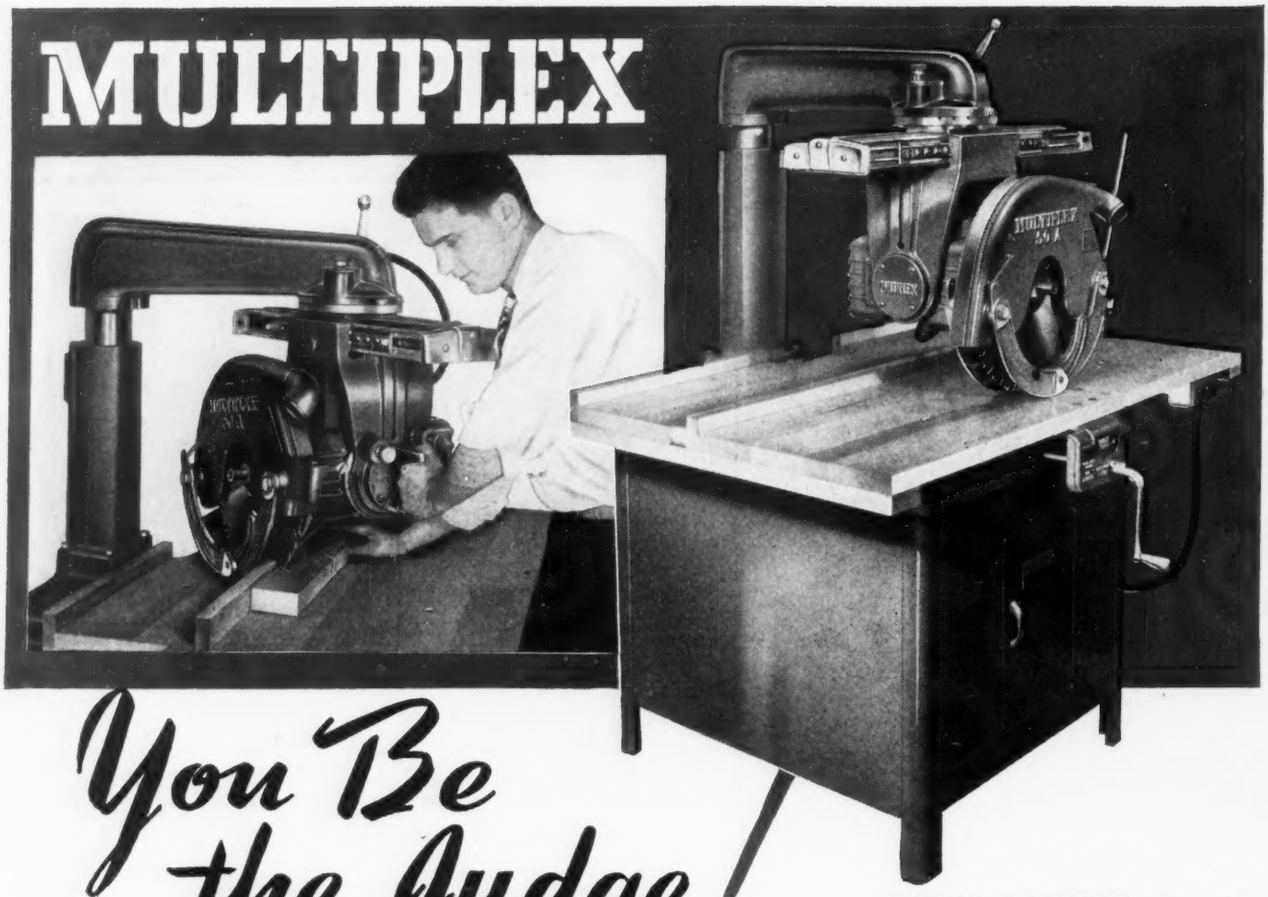
SEE YOUR CLETRAC DEALER OR
FILL IN AND MAIL THIS FORM FOR CATALOGS

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# MULTIPLEX



# You Be the Judge!

**A demonstration will quickly prove to you that this new Multiplex Model 50A Radial Arm Saw will give more production and greater accuracy of operation than any saw you have seen.**

**Its reasonable first cost is no measure of its value when put on the job where value is measured in terms of performance and production.**

**The Multiplex will do everything any other radial arm saw will do plus several exclusive features such as:**

- **Difficult Left-Hand Miters in the same 100% range as conventional right hand miters.**
- **Exclusive Versatile Elbow or center suspended track means unlimited saw positions.**
- **Movable Table - permits full usable travel of cutting head in any cross cut, miter or rip position.**
- **Ball Bearing Assembly - self-cleaning balls running on nitralloy rods.**
- **Automatic Recording Rip Scales provide accurate and convenient means for measuring width of rip.**

**The Multiplex 50A is designed to handle heavy work in greater capacities. It is available with either 22″ or 30″ travel track and is powered by a 3, 5, 7½ or 10 HP motor.**

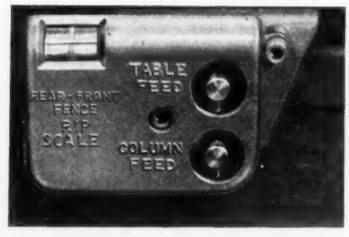
**For lighter work investigate the Models 30A and 40A.**

*Write today for literature and name of nearest dealer.*

## NEW MODEL 50-A
## *Radial Arm Saw*

**POWERED BY A**

**3, 5, 7½, or 10 H. P. MOTOR**




**Easily legible scales, conveniently located at the front of the machine, accurately measure width of rip. One scale measures width of rip from the front fence -- the other from the rear fence.**

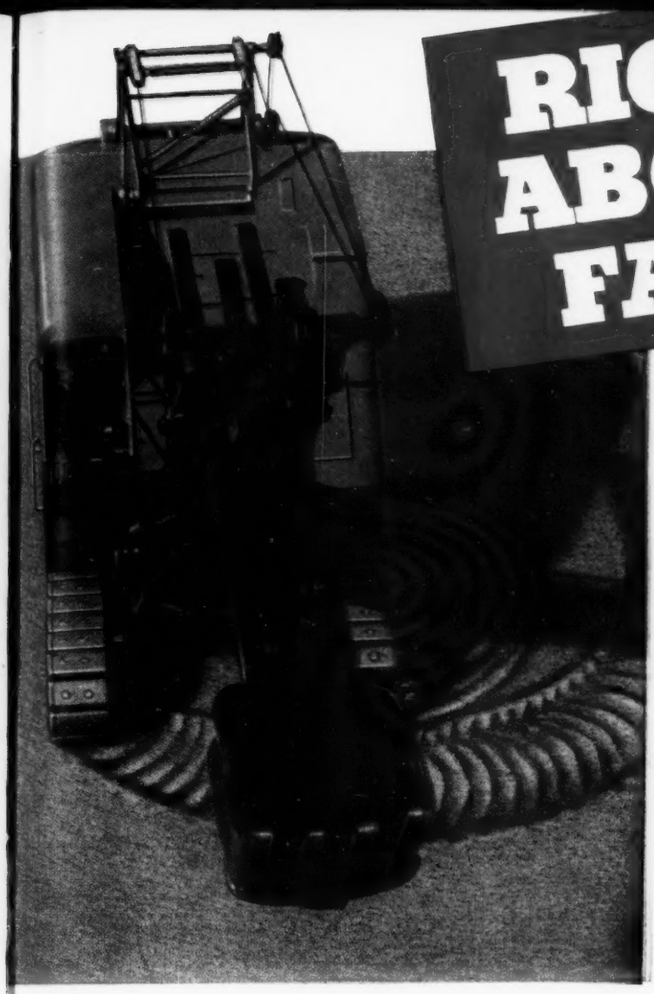
**Both column feed and table feed are controlled by the crank conveniently located at the front of the machine. Merely move the table to the desired width of rip indicated on the scale.**

## RED STAR PRODUCTS, INC.

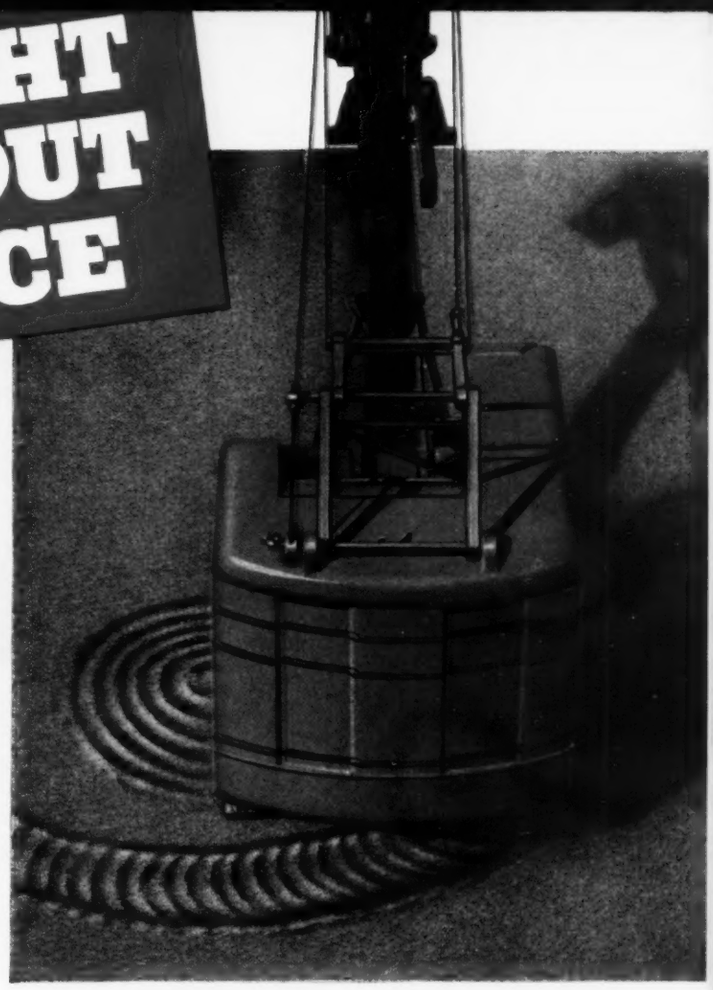
**3455 VEGA AVENUE, CLEVELAND 13, OHIO U. S. A.**

CROSS CUT • RIP • BEVEL RIP • BEVEL CUT OFF • PLOW • SHAPE • DADO
• • RAFTER NOTCH • MITER • COMPOUND MITER • TENON • RABBET • •

# RIGHT ABOUT FACE



*Swords on the ground show how P&H can "turn on a dime" — all motions are easily controlled from operator's cab. No need for blocking the crawlers.*



*P&H's easy steering is ideal for easy maneuvering in cramped quarters; for faster move-ups. You can make gradual turns, sharp turns or rightabout-face.*

*How*

# EASIER STEERING

## pays dividends



• Here's an exclusive and simplified means of steering and braking. Cam type steering is combined with independently operated hydraulic brakes to provide the most flexible and maneuverable steering ever offered on equipment of this kind.

P&H's easier maneuvering on all types of jobs — over all kinds of ground — means more efficient operation — more time for actual production — greater yardage. And, with P&H's true tractor type crawlers, you have the dependable performance that saves time and money on every job — every day. Add up these savings over a period of years and you have a substantial figure.

Easier steering is but one of many of P&H added values. Learn about *all* of them.

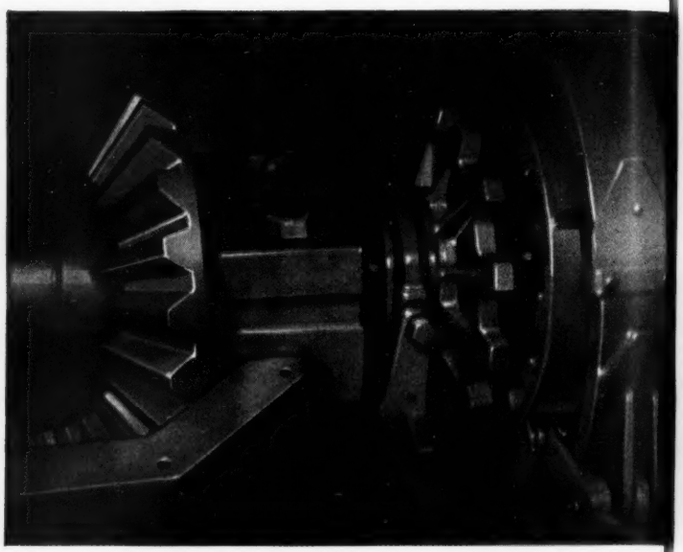
**Look to P&H for added values**

ANOTHER **P&H** ADDED VALUE

# EASIER STEERING --BETTER BRAKING



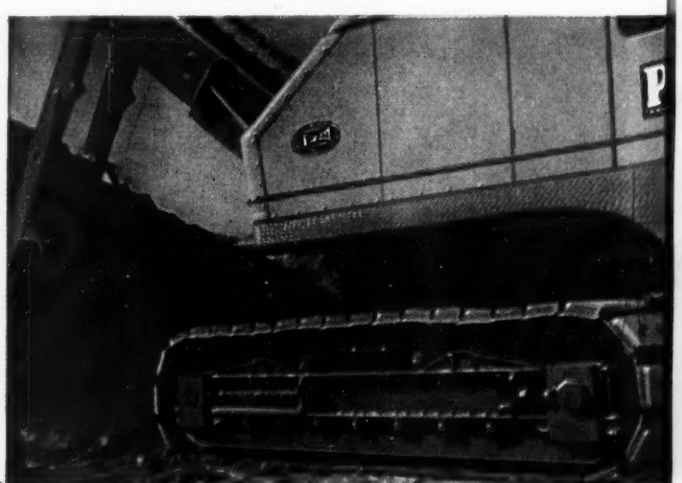
**HANDY LEVER ENGAGES JAW CLUTCHES.** Steering of the machine is effected by a combination of sliding jaw clutches on the propel shaft and hydraulic band brakes on driving sprocket mechanism. Clutches, which transmit driving force to either or both crawlers, are engaged or disengaged by this handy lever located beside the operator.



**HOW JAW CLUTCHES OPERATE.** Two of these sliding jaw clutches, on opposite ends of the horizontal propel shaft, transmit driving force to the crawler mechanism. Either one or the other may be engaged or disengaged at will to propel crawlers simultaneously or individually, forward or reverse.




**STEERING WHEEL CONTROLS ALL MOTIONS OF CLUTCHES AND BRAKES.** By turning this hand steering wheel, it operates the cam gear. The operator selects any combination or arrangement of jaw clutches and steering brakes. You can make sharp or gradual turns, easily and quickly without stopping.



**INDEPENDENT CRAWLER BRAKES PREVENT ROLL-BACKS AND RUNAWAYS.** These positive locking P&H brakes may be operated in either of two ways: by the hand wheel as steering brakes — or by independent hydraulic control. Both are conveniently located, within easy reach for the operator.

**Learn about easier steering and other P&H added values. See your nearest P&H representative or write us for complete information.**

**P&H Excavators are built in all sizes up to 6 cubic yards capacity, gasoline, Diesel or electric powered. Ask for literature on the size that interests you.**

**P&H**

**EXCAVATORS**
4494 W. National Ave.
Milwaukee 14, Wisconsin

**HARNISCHFEGER CORPORATION**

EXCAVATORS • ELECTRIC CRANES • ARC WELDERS P&H HOISTS • WELDING ELECTRODES • MOTORS

# For the *Toughest* Service on Powered Wheels



The GENERAL LCM

for

*Logging*
*Construction*
*Mining*



New Angle Pulling Power
More Rubber • Greater Traction
Squeegee Power Cleats • Ejection Action
Snag-Resistant Tread and Sidewall
Heavy Shock-Absorber Plies
Buttressed Highway Rib • Reinforced, Extra Heavy Beads
Natural Rubber Impact Cushion
Deeper, Cool-Running Shoulders

The GENERAL L.C.M.

THE GENERAL TIRE & RUBBER CO. • AKRON, OHIO

# Drift Bolts



Ideal for timber construction, Bethlehem Drift Bolts are furnished plain or galvanized in a complete size range, and in the following styles—Bodies: Round or Square. Heads: Button, Countersunk, Square and Headless. Points: Wedge, Semi-Cone, Full-Cone, No-Point. Because of the variety of Bethlehem Drift Bolts, it is important that inquiries specify the style of body, head, and point desired.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation*

## *Other Bethlehem Construction Fastenings*

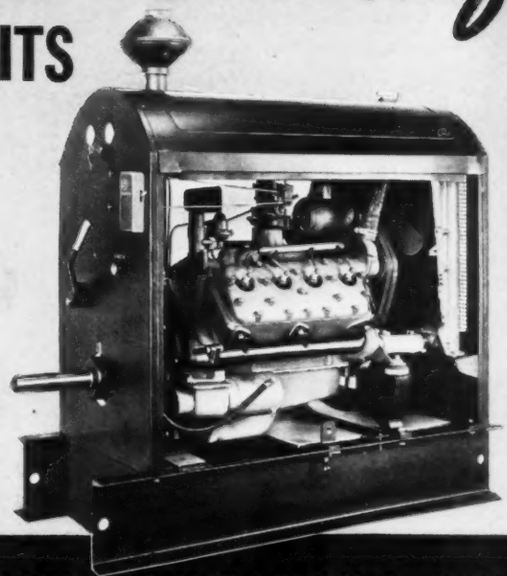
**BOLTS and NUTS... TURNBUCKLES... CLEVISES... RIVETS... SPIKES... WASHERS**

# Cut POWER COSTS in Half!

## with KRW INDUSTRIAL POWER UNITS

● Users everywhere . . . all kinds of power users . . . say without hesitation: "It's the finest and most dependable power plant ever built. It has cut our power costs in half." One reason owners are so enthusiastic is the fact that the heart of every KRW Industrial Power Unit is the great Ford 100 H. P. V-8 Truck Engine . . . blood brother to millions more in service around the world. Thus, every KRW user has available efficient, low-cost Ford Service as well as the Ford Engine and Parts Exchange Plan.

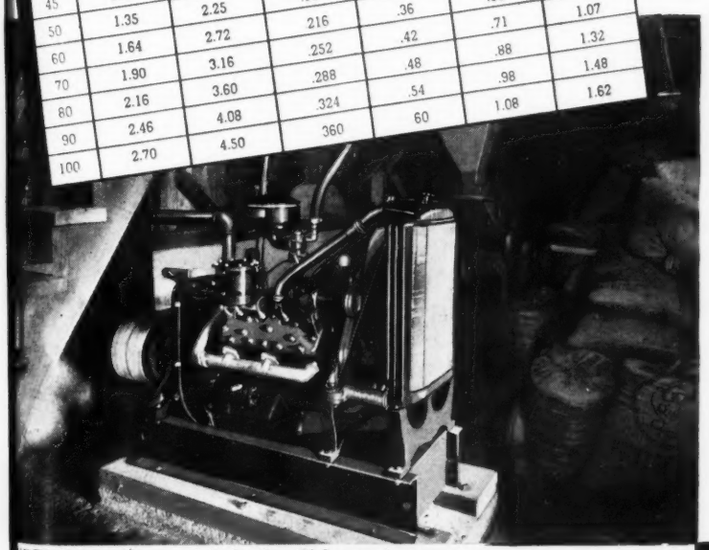
Combined with the V-8 power plant is the KRW 30-year tradition of quality manufacture; of close technical association with Ford, and Ford Dealers everywhere. KRW Conversion Parts are built right, of the right materials by modern precision methods. KRW Power Units operate on either gasoline, natural gas or any "bottled gas." KRW Industrial Power Units have been giving continuous, satisfactory, low-cost service for many years. See your Ford Dealer or mail the coupon.



**DRIVEN BY FAMOUS FORD V-8—100 H. P. TRUCK ENGINE—OPERATES ON GASOLINE, NATURAL GAS OR BUTANE . . . EFFECTS TREMENDOUS SAVINGS . . . EVERY FORD DEALER CAN SUPPLY SERVICE AND PARTS.**

### OPERATING COSTS PER HOUR

| Brake Horsepower | ELECTRIC MOTOR 80% EFFICIENCY Cost Per Kilowatt | | KRW INDUSTRIAL UNIT OPERATING ON NATURAL GAS Cost Per 1000 Cu. Ft. 1125 B.T.U. | | KRW INDUSTRIAL UNIT OPERATING ON GASOLINE Cost Per Gallon (Tax Free) | |
|---|---|---|---|---|---|---|
| | $ .03 | $ .05 | $ .30 | $ .50 | $ .10 | $ .15 |
| 15 | .41 | .68 | .054 | .09 | .19 | .29 |
| 20 | .54 | .90 | .072 | .12 | .25 | .38 |
| 25 | .68 | 1.13 | .09 | .15 | .30 | .45 |
| 30 | .82 | 1.36 | .108 | .18 | .34 | .51 |
| 35 | .95 | 1.58 | .126 | .21 | .39 | .59 |
| 40 | 1.08 | 1.80 | .144 | .24 | .44 | .66 |
| 45 | 1.23 | 2.04 | 162 | .27 | .49 | .74 |
| 50 | 1.35 | 2.25 | .18 | .30 | .54 | .81 |
| 60 | 1.64 | 2.72 | 216 | .36 | .63 | .95 |
| 70 | 1.90 | 3.16 | .252 | .42 | .71 | 1.07 |
| 80 | 2.16 | 3.60 | .288 | .48 | .88 | 1.32 |
| 90 | 2.46 | 4.08 | .324 | .54 | .98 | 1.48 |
| 100 | 2.70 | 4.50 | 360 | 60 | 1.08 | 1.62 |



*KRW Power keeps this feed mill humming.*

## STUDY THIS CHART IN TERMS OF YOUR INDIVIDUAL NEEDS

The table above shows the comparison of operating costs per hour for (1) Electric Motor, (2) KRW Unit operating on natural gas and (3) KRW Unit operating on gasoline. For dependable, constant-duty power, we recommend an engine speed not to exceed 2250 RPM and that only two thirds of the B. H. P. developed at any given speed should be used. Thus at 2250 RPM the engine develops a maximum of 64 B. H. P. on Gasoline and 55 B. H. P. on Natural Gas. This is usable Horsepower, available for short periods only. Two thirds of this or the constant duty power would be 43 B. H. P. and 36 B. H. P. with Gasoline and Natural Gas respectively. By using only two thirds of the maximum available Horsepower, reserve power is maintained for variations in fuel, lubricating oils, adjustments, ignition and climatic conditions. (There is a 3 to 5 per cent power loss for each 1000 feet of altitude.)

For highest efficiency, long engine life and economy, an engine speed of 1800 RPM has proven most satisfactory. Ford V-8 Engines are so highly developed and perfectly balanced, that an operating speed of 1800 RPM is recommended regardless of the Horsepower to be used.

*See your Ford Dealer or Write...*

# K·R·WILSON

215 MAIN ST. · BUFFALO 3, N. Y.

K. R. Wilson, 215 Main St., Buffalo 3, N. Y. 25

Please send me information and prices on KRW INDUSTRIAL POWER UNITS for

Generating Electricity ☐ Power Take-off ☐
Equipped for gasoline ☐ Natural gas ☐ Butane ☐

Firm _____

Address _____

City and Zone _____ State _____

## For all kinds of reinforcing jobs

# specify AMERICAN WELDED WIRE FABRIC

● American Welded Wire Fabric is the *versatile* reinforcing material. Its typical uses range from reinforcing acres of skyscraper floors to distributing adequate strength throughout thin-section precast building products. It can be laid flat or fitted to any shape, including wrapping around pillars and columns, beams and girders.

In practically every building project where concrete is specified for floors, roofs or walls, you will find places where the most effective and economical reinforcement is American Welded Wire Fabric.

The superior reinforcing value of its many closely-spaced members—of cold drawn, high yield-point steel—gives ample strength to thinner, lighter slabs. So you use less concrete, less steel, when you use American Welded Wire Fabric. It is shipped to you in prefabricated sheets and rolls, needs no assembling on the job. It is easily handled, stays in place during pouring—all of which saves you time and money.

U·S·S American Welded Wire Fabric is made by the world's largest manufacturer of prefabricated reinforcing materials. You can specify it with full confidence.

**American Steel & Wire Company**
Cleveland, Chicago and New York
Columbia Steel Company, San Francisco, Pacific Coast Distributors
Tennessee Coal, Iron & Railroad Company, Birmingham, Southern Distributors
United States Steel Export Company, New York
UNITED STATES STEEL




**Every type of concrete construction needs American Welded Wire Fabric reinforcement.**

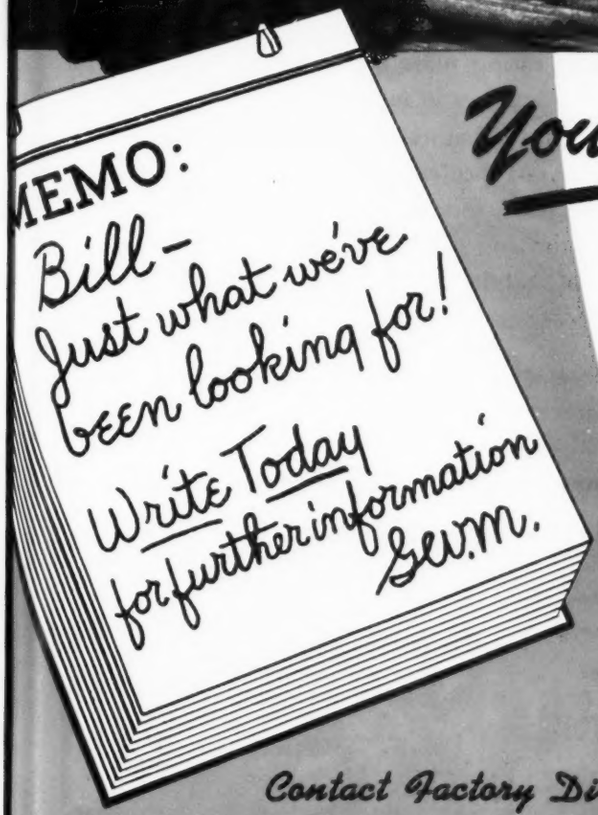


# UNIT 357 Mobile CRANE

★ Self-Propelled!
★ Rides on Rubber!




• Full Swing
• Goes Anywhere
• Lifts Anything




## You Can.....

- Eliminate costly yard labor! One operator and a hook-up man can do the work of 14 yard laborers.
- Unload long lengths of Structurals . . . Pipe . . . Bars . . . Lumber, etc. from cars or trucks and place them in stock piles.
- Dismantle . . . load . . . move and erect machinery.
- Excavate . . . remove trees . . . or lay sewers.
- With use of Crane Hook, Bucket or Magnet, facilitate the storage of material away from railroad tracks or over-head crane.
- Work in all kinds of weather, regardless of ground conditions in your yard . . . mud . . . cinders . . . or concrete.

**IT'S *Built* RIGHT**
***Priced* RIGHT AND**
***Ready* FOR DELIVERY!**

**UNIT CRANE and SHOVEL CORP.**
5305 W. Burnham Street, Milwaukee 14, Wis., U.S.A.

*Contact Factory Direct for Price and Delivery or See Your Dealer*




to a winner it's a BLUE RIBBON •

to a TRUCK MIXER it's-

2 CUBIC YARD MIXER
GUARANTEED TO HOLD, MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A.
3 CUBIC YARD AGITATOR
N.R.M.C.A. REGISTRY No.

**"Winner"!** The blue ribbon on a prize-winning bull practically shouts a story of achievement—of careful, accurate breeding.

On a truck mixer, the Truck Mixer Bureau rating plate is equally vociferous in proclaiming the achievement of the mixer in meeting the standards set up by the Bureau for your protection. You can be absolutely certain of full rated capacity . . . of protection against "outlaw" sizes. In the words of the plate, the truck mixer is "guaranteed to hold, mix, and agitate its rated capacities and certified to comply with Truck Mixer Manufacturers Bureau standards as approved by the N.R.M.C.A."

When you buy a truck mixer, that plate is our pledge that you can buy with confidence . . . operate with accuracy.

# Truck Mixer Manufacturers Bureau

Affiliated with the National Ready Mixed Concrete Association

BLAW-KNOX DIVISION
Pittsburgh, Pa.

CHAIN BELT COMPANY
Milwaukee, Wis.

CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.

THE JAEGER MACHINE COMPANY
Columbus, Ohio

RANSOME MACHINERY COMPANY
Dunellen, N. J.

THE T. L. SMITH COMPANY
Milwaukee, Wis.



# CLYDE GASOLINE HOISTS



***Engineered to do your job, fast, safely and economically . . .***

. . . that is the story behind every Clyde gasoline hoist.

The illustrations show one of the new, low cost 15 H.P. Frame 3 hoists, handling materials on the construction of a 125 foot grain storage silo at Owosso, Michigan.

It's ruggedness of construction—yet light weight are features that make it especially desirable to the contractor who wants portability as well as dependability.

Simplicity of design means better performance at all times . . . no frequent or delicate adjustments required to maintain full hoist efficiency.

Why not consider the advantages of a Clyde Frame 3 hoist on your next job. Write for complete information—just mention Catalog No. 7622.

**CLYDE QUALITY EQUIPMENT**

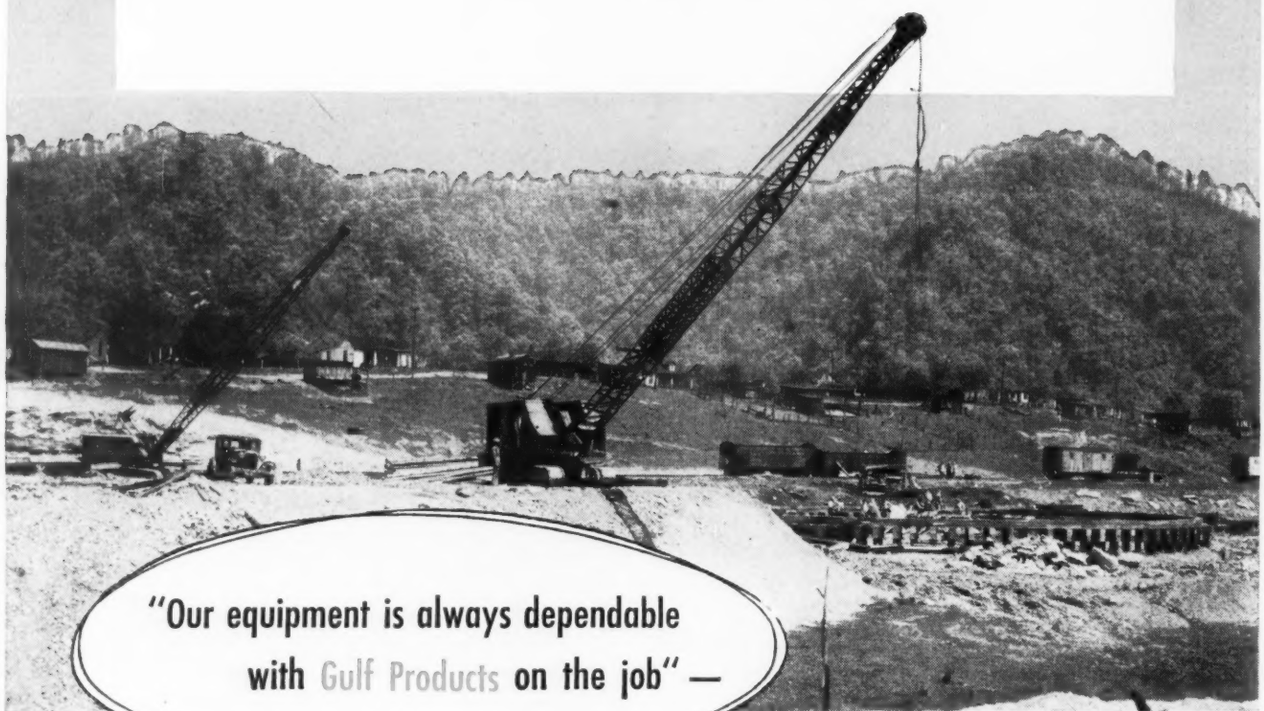
| | |
|---|---|
| GASOLINE HOISTS | ELECTRIC HOISTS |
| STEAM HOIST | BELT HOISTS |
| CAR PULLERS | HAND POWERS |
| STEEL DERRICKS | TIMBER DERRICKS |
| WHIRLEYS | ROLLERS |

*Manufactured by*

**CLYDE IRON WORKS, Inc.**
**Duluth 1, Minnesota**
**Subsidiary of Barium Steel Corp.**

# Gulf Quality Lubricants and Fuels

## *help contractor keep ahead of schedule on railroad yard project—*



"Our equipment is always dependable with Gulf Products on the job" —

SAYS S. N. CONNOR, SUPERINTENDENT

Ferguson & Edmondson Construction Company, Pittsburgh, Pa., has the contract for enlarging the Chesapeake & Ohio Railroad yard at Shelbiana, Ky. Costing approximately $1,000,000, the job involves moving 500,000 yds. of dirt and constructing turntable, roundhouse, new station and auxiliary buildings.

"WE have our share of worries on a job of this kind," says Mr. Connor. "But lubricants and fuels are not among them—we use Gulf products. Always dependable—in quality, performance, and availability—they help keep our equipment dependable, too. That's one reason we're ahead of schedule on this job."

There are three solid reasons why so many leading contractors specify Gulf quality products. One is performance—less wear and smoother operation for equipment. Another is the high type of engineering service Gulf provides to insure the right types and grades of lubricants and fuels for every unit. Third, Gulf's prompt delivery service.

Gulf quality fuels and lubricants are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

GULF

**Gulf Oil Corporation · Gulf Refining Company**

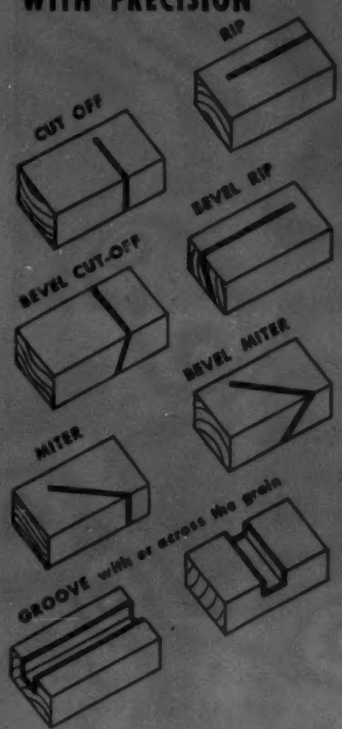
***DIVISION SALES OFFICES:***

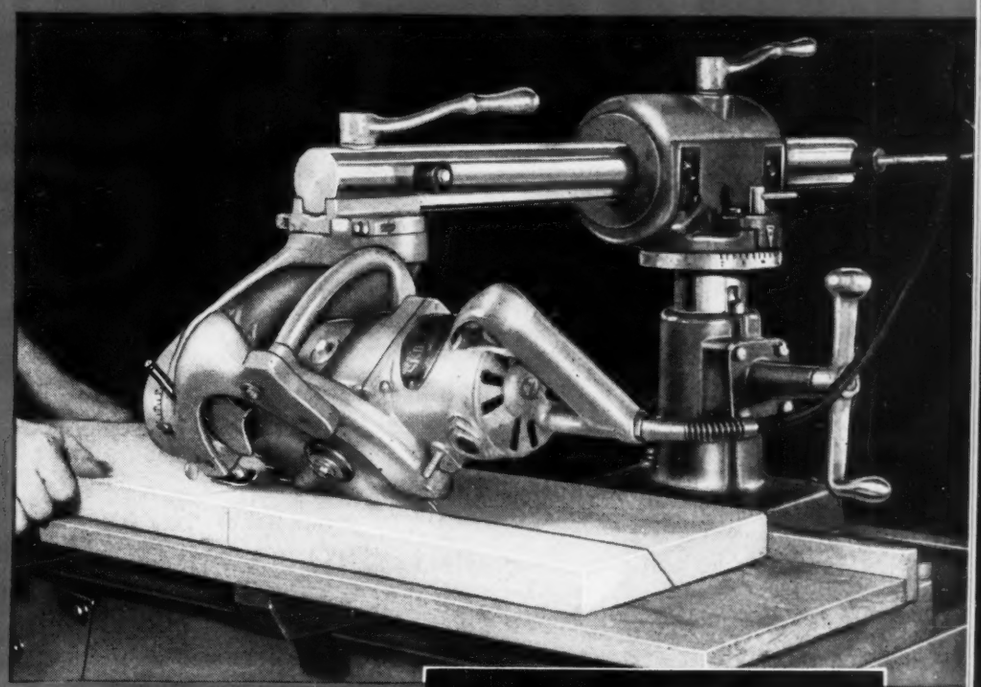
**Boston · New York · Philadelphia · Pittsburgh · Atlanta**
**New Orleans · Houston · Louisville · Toledo**

# MULTIPLY YOUR SKIL SAW'S MANY USES with a SKIL SAW RADIAL SUPPORT

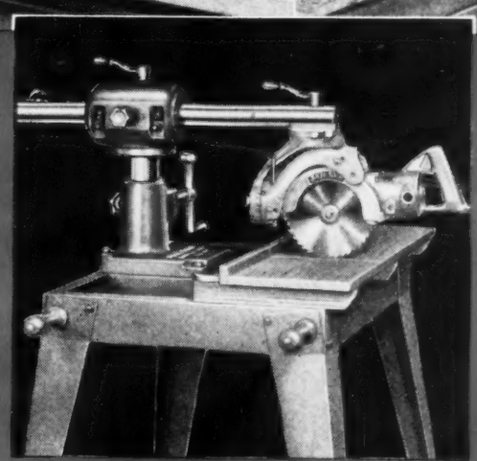
## *Quickly Converts Portable Electric SKIL SAW* into an Efficient Radial Saw*

**MAKES ALL THESE CUTS WITH PRECISION**



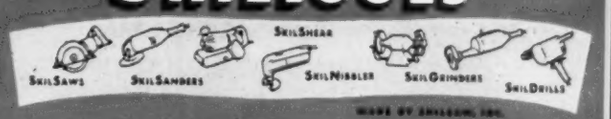
SKIL SAW Radial Support may be had with or without steel legs.



• Every SKIL SAW owner knows that this portable electric saw is tops for cutting wood, metal, stone or compositions accurately . . . *free hand.* Now you can add *precision* on multiple cuts simply by slipping your SKIL SAW into a Radial Support . . . you make the conversion quickly and easily. If you are interested in cutting big costs on any job, you ought to call your SKILTOOL Distributor today for additional information on SKIL SAW Radial Support!

ELECTRIC PNEUMATIC

**SKILTOOLS**

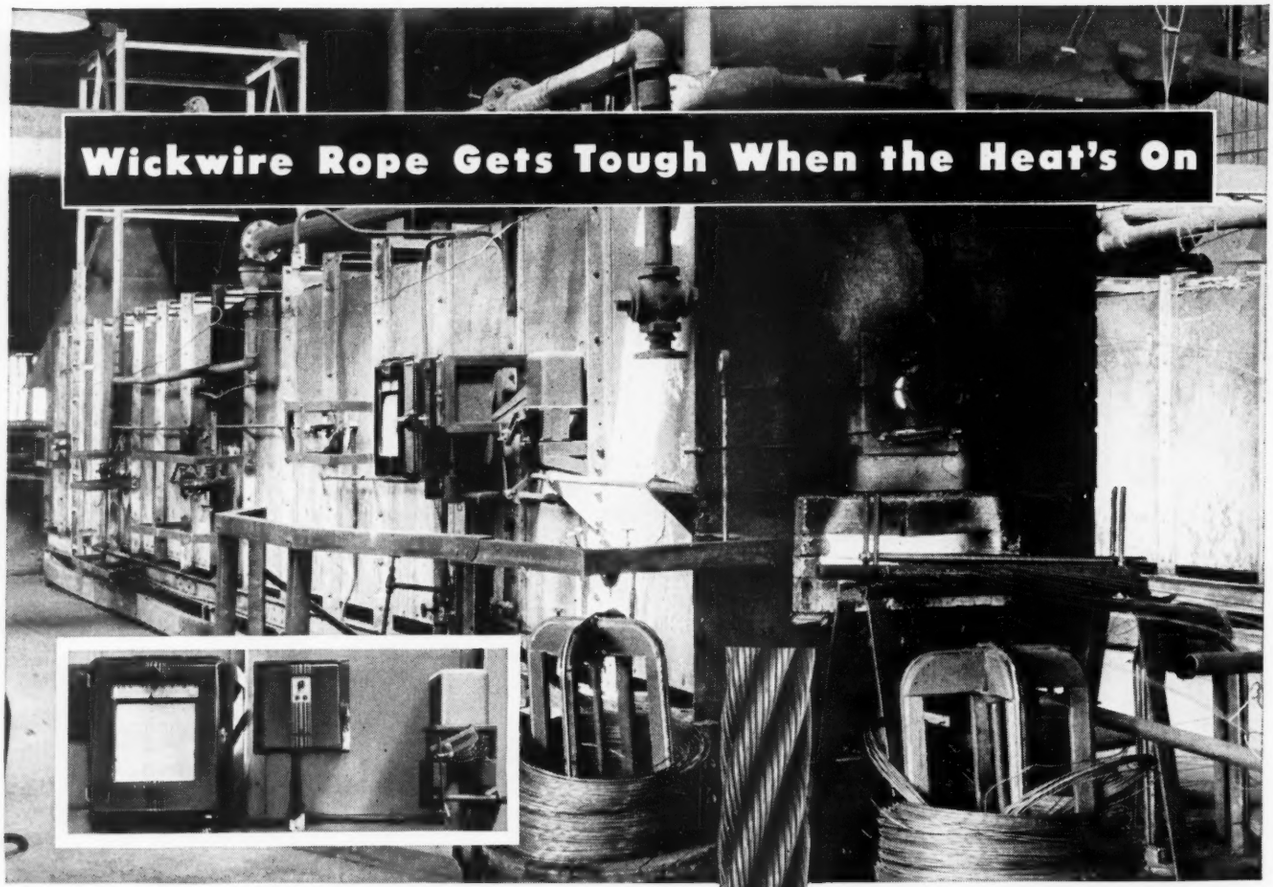



**SKILSAW, INC., 5033 Elston Ave., Chicago 30, Ill.**

*Factory Branches in Principal Cities*

In Canada: SKILTOOLS, LTD., 66 Portland Street, Toronto, Ontario

* SKIL SAW is made only by SKILSAW, INC.



# Wickwire Rope Gets Tough When the Heat's On

Traveling through a fiery patenting furnace changes the microstructure of high carbon steel—removes the effect of cold drawing, permits further processing and makes rope wire exceedingly strong and tough.

Temperature and rate of cooling have an important bearing on the size of grains developed in patenting, and grain size determines to a large degree, the physical properties of the wire. That's why the patenting furnaces at Wickwire's newly enlarged Rope Mill have controls so accurate that, even when operating at 1700°F., they anticipate a 5° drop or rise in temperature and automatically regulate the burners.

Accurate patenting temperature is one of many quality controls used in making Wickwire Rope. Because it contributes to rope strength and toughness, it is as important to you as the service of Wickwire distributors and rope engineers who are always ready to help solve your wire rope problems and to supply the right rope for your needs.

For the utmost in performance, safety and long life, specify Wickwire Rope. It is available in all sizes and constructions, both regular lay and WISSCOLAY *Pre*formed.

**THIS 82-PAGE BOOK ON WIRE ROPE IS FREE — WRITE FOR YOUR COPY TODAY!**




Thousands of wire rope users have found that the information packed in the pages of "Know Your Ropes" has made their work easier. It's full of suggestions on proper selection, application and usage of wire rope. It's easy-to-read and profusely illustrated. For your free copy, write: Wire Rope Sales Office, Wickwire Spencer Steel, Palmer, Massachusetts.

## WICKWIRE ROPE

CF&I & SUBSIDIARIES

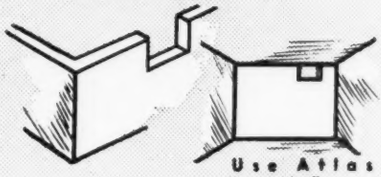
**A PRODUCT OF WICKWIRE SPENCER STEEL DIVISION OF THE COLORADO FUEL AND IRON CORPORATION**

**WIRE ROPE SALES OFFICE AND PLANT**—Palmer, Mass. **EXECUTIVE OFFICE**—500 Fifth Avenue, New York 18, N. Y.

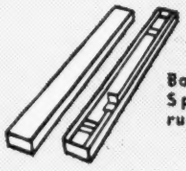
**SALES OFFICES**—Abilene (Tex.) • Boston • Buffalo • Chattanooga • Chicago • Denver • Detroit • Emlenton (Pa.) • Philadelphia • Tulsa • Fort Worth • Houston • New York

**PACIFIC COAST**—The California Wire Cloth Corporation, Oakland 6, California

## THE A.B.C. of ATLAS SAVINGS.



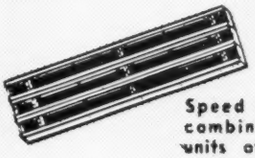
Use Atlas Speed Forms for foundations, floors and walls.



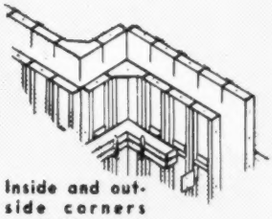
Basic unit, the Speed Panel, rugged steel.



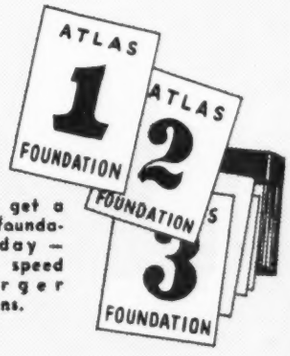
Ingenious quick-action wedge bolt, for rapid joining or disassembly.



Speed panels combine into units of three or more for quick handling.



Inside and outside corners available, also special panels.




Easy to get a house foundation a day — Similar speed on larger operations.

## FORMS ARE 60% OF POURED CONCRETE COSTS

## ATLAS WILL SAVE AS MUCH AS 50% ON FORM COSTS

### Because

- They Cut On-Site Labor in Half
- Time Savings Range up to 50%
- Figure as Low as 1¢ per sq. ft. per Use

ATLAS FORMS do what today's competitive building market demands -- reduce costs.

In home, apartment, factory, bridge or tunnel building, Atlas Forms mean speed, convenience, and economy. They are easy and quick to erect, simple and fast to strip. Boxes, inserts, wiring, etc. easily accommodated. The completed job has that smooth finished appearance, no knot holes or grain marks. Let us prove to you that you can save time and money on poured concrete construction. Just fill in and mail the coupon below.

FOR RENT OR SALE



**IRVINGTON FORM & TANK CORPORATION**

Irvington Form & Tank Corp., 43 Cedar St., New York 5, N.Y.

I am interested in reducing form costs in the following types of poured concrete construction:

.....

.....

Name .....
Title .....
Company .....
Address .....

# YOU'LL FIND THOR



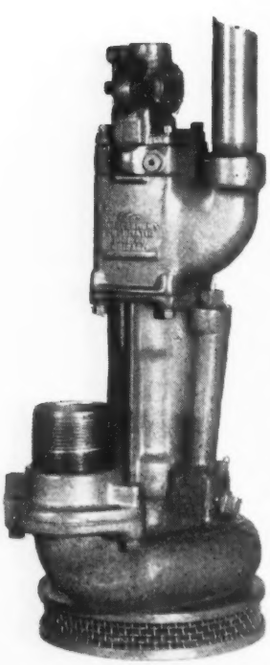
*Used with a sheeting driver attachment, the Thor No. 25 Breaker quickly drives wood or steel sheeting up to 3" thick.*



*Thor No. 25 Paving Breakers do fast demolition on pavements, walls, columns, piers, foundations, etc.*



*With clay spade attachment, a versatile Thor Breaker saves time and effort in trenching operations.*



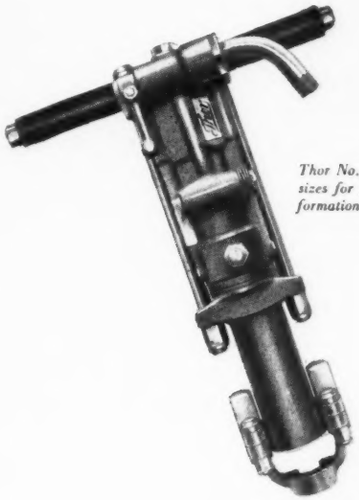
*Self-priming Thor Sump Pumps, with centrifugal impeller-type construction, operate with high efficiency in oil, sludge, sewage or dirty water.*



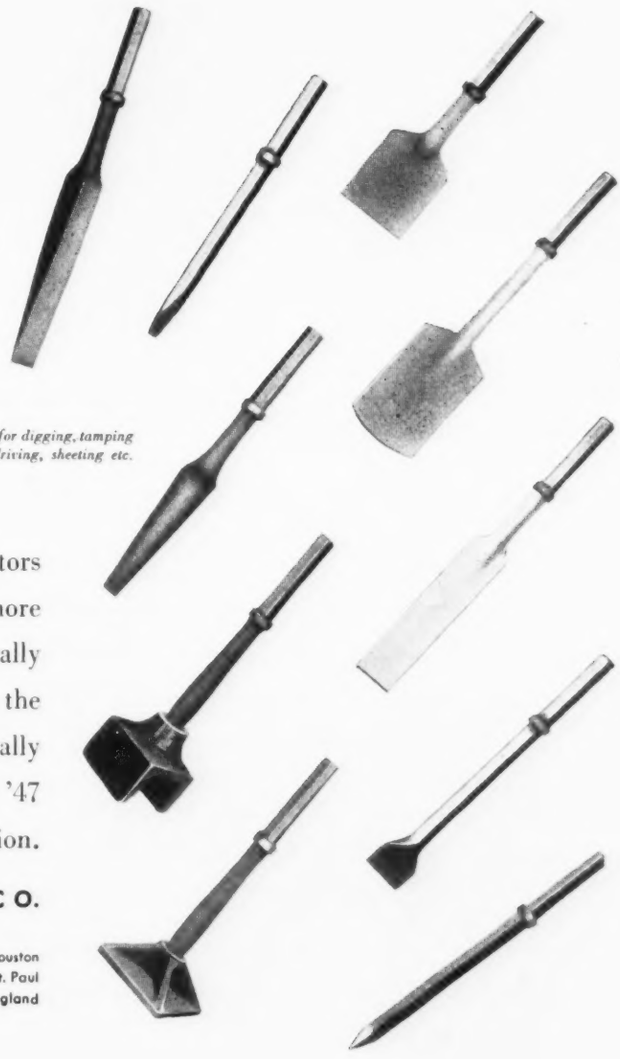
*Thor Pneumatic and Electric Saws cut all types of lumber on the job.*

# TOOLS ON MORE JOBS

*with* Thor **JOBS MOVE FASTER!**



*Thor No. 75 Rock Drill—one in a range of sizes for general purpose drilling in all rock formations.*



*Thor contractors tool accessories for digging, tamping rock breaking, asphalt cutting, driving, sheeting etc.*

Thor Tools appear on more jobs because contractors equipped with Thor can bid for more jobs—and get more jobs done faster! They can figure ahead on practically doubling the output of their gangs for any job with the extra power and handling ease of Thor Tools that naturally get more work done quicker. Figure Thor in your '47 plans—call your Thor dealer today for complete information.

**INDEPENDENT PNEUMATIC TOOL CO.**

600 W. Jackson Blvd., Chicago 6, Ill.

Birmingham Boston Buffalo Cincinnati Cleveland Denver Detroit Houston
Los Angeles Milwaukee New York Philadelphia Pittsburgh St. Louis St. Paul
Salt Lake City San Francisco Toronto, Canada London, England

Thor **PORTABLE POWER TOOLS**

# MERCED IRRIGATION DISTRICT
## CHIEF ENGINEER SAYS OF
# MICHIGAN DRAGLINE --




"The MICHIGAN gives us the flexibility and mobility required in our operations. Even in the short time we have had this machine, we have found so many uses for it that we wonder how we got along without it before. Performance has been excellent and we are looking forward to years of efficient operation."

Wherever you go, you'll find users enthusiastic with praise of MICHIGAN performance, economy, operating ease and time-saving truck mobility. Talk to any MICHIGAN owner and you'll see why so many become "repeat" buyers. See your distributor for details on the entire MICHIGAN line.



MERCED IRRIGATION DISTRICT serves 164,000 acres of diversified croplands, maintains 723 miles of canals, over 5,700 structures, 50 miles of drainage channels, 106 drainage wells and a dam and hydroelectric plant on the Merced River.

MICHIGAN

**MICHIGAN POWER SHOVEL COMPANY**

500 SECOND STREET • BENTON HARBOR, MICHIGAN




# A *GOOD* FOUNDATION CALLS FOR *Fire-Chief*

TRADEMARK

Too often canvas covers for concrete foundations present a dangerous fire hazard. An overturned salamander . . . a carelessly tossed cigarette . . . and the canvas goes up in flames with the forms, ruining valuable work.

But FIRE CHIEF Finished Hooperwood Duck eliminates that danger. FIRE CHIEF is the canvas that will not burn. The fire is out before it starts.

In addition to fire resistance, FIRE CHIEF finish offers water, weather, wear and mildew resistance—and all these qualities are permanent! They will not bleach or wash out.

Economy? It's already proved that FIRE CHIEF outwears ordinary untreated canvas many times.

For tarpaulins, windbreaks and all other construction uses, it pays to specify FIRE CHIEF.

Write for booklet.

**WM. E. HOOPER & SONS CO.**

*General Sales Offices:*

New York 320 Broadway — PHILADELPHIA Juniper & Cherry Sts. — Chicago 300 W. Adams St.

*Hooperwood Mills:* Woodberry, Baltimore, Md.

• "*Fire-Chief*" *Finished* •

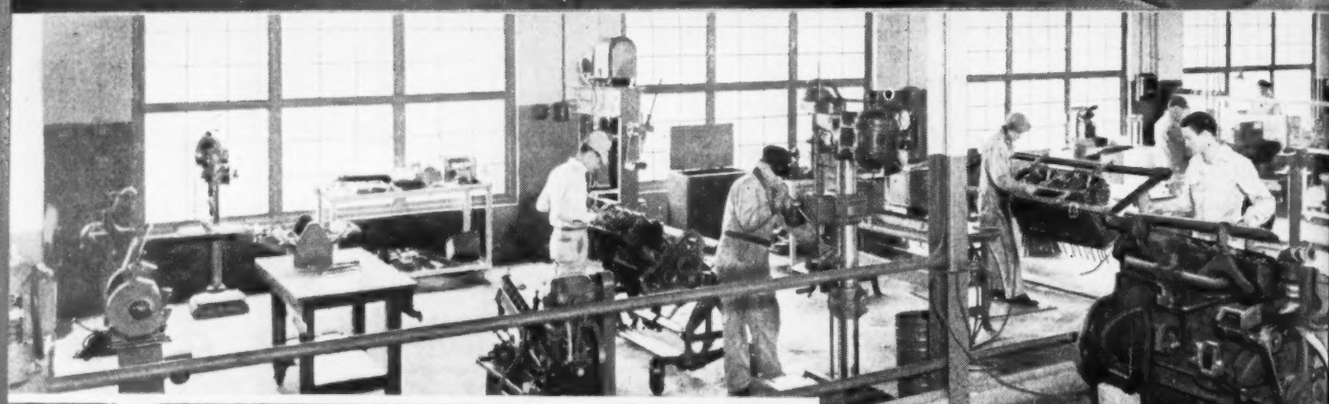
TRADEMARK

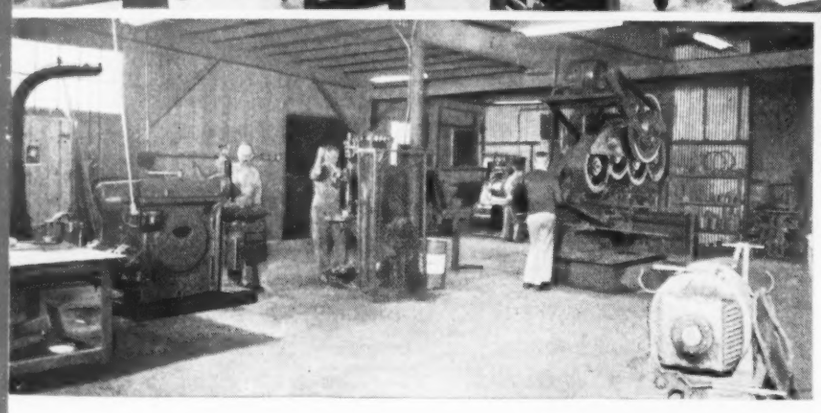
U. S. Patent No. 2,299,612 and other patents

**HOOPERWOOD COTTON DUCK**




International distributors maintain complete stocks of parts under a perpetual inventory control. This, plus nearby International parts depots, assures prompt supply of any needed part.





Factory-trained mechanics, using modern fixtures and tools, make sure of factory-level servicing, repairing and rebuilding of International engines. The engine department of a distributor's shop is shown above.

Shears, drills, lathes, punch presses and other powered tools are used in many distributors' shops for equipment repair or construction.

CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

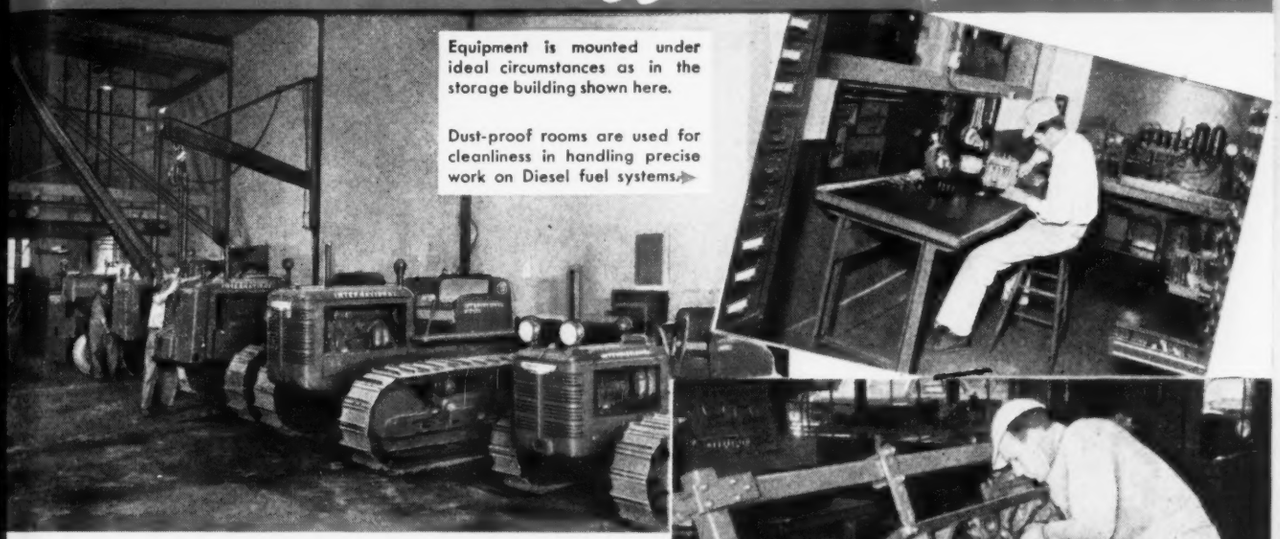
# INTERNATIONAL



# *Unexcelled*

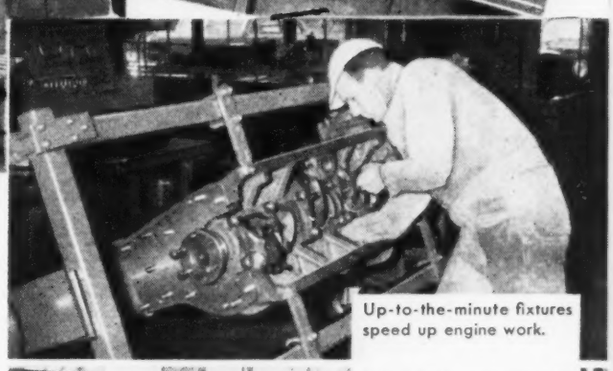
## NATION-WIDE SERVICE
## *and Parts Facilities*

# Keep INTERNATIONAL Power *at Peak Efficiency*

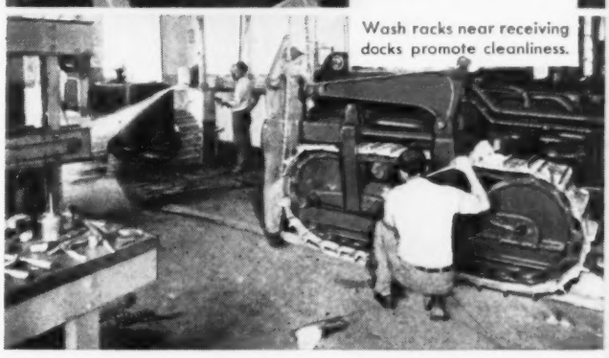


Equipment is mounted under ideal circumstances as in the storage building shown here.

Dust-proof rooms are used for cleanliness in handling precise work on Diesel fuel systems.



Up-to-the-minute fixtures speed up engine work.



Wash racks near receiving docks promote cleanliness.

INTERNATIONAL Industrial Power Distributors throughout the nation are superbly equipped to service and maintain International tractors and International-powered equipment.

Keeping "down time" to a minimum is the function of this nation-wide parts and service network—so that Internationals may produce better profits for their owners through greater dependability and longer operating life.

Depend on your International Industrial Distributor for your equipment and service requirements.

*Industrial Power Division*
INTERNATIONAL HARVESTER CO.
180 North Michigan Ave., Chicago 1, Ill.

INTERNATIONAL HARVESTER

# *Industrial Power*



IN THE SOUTHERN TRADITION




COURTESY is one of those things you hear about more often than you *see*. It's unfortunately true that in this modern world common courtesy is becoming more uncommon every day.

Here at Hermitage we still believe that the grand old Southern virtues of thoughtfulness, consideration and good manners are well worth preserving. Things we hear from our customers make us feel we're doing a good job in that direction.

We know you'll like the way we do business. And to us that's just as important as the fact that Hermitage Cement products are unsurpassed in quality anywhere in the world.

**Hermitage Portland Cement Company**

AMERICAN TRUST BUILDING • NASHVILLE 3, TENNESSEE

Hermitage Cements

PORTLAND—HIGH EARLY STRENGTH—AIR ENTRAINING—MASONRY




## THANKS TO THE LOCAL DISTRIBUTOR

***bulldozer cutting edge needs replacement . . . swing gear on power shovel breaks . . . electric motor on cement elevator burns out . . .***

Needs for repairs like these are typical daily headaches on every construction job . . . headaches that must be cured fast to keep job progress up and construction costs down.

Fortunately there's an easy way to get quick, economical relief: a telephone call to the local distributor.

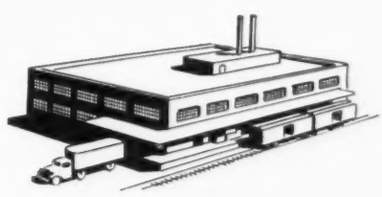
Distributors are prepared to handle repair problems promptly . . .

- *They maintain conveniently located warehouses and repair shops stocked with a vast variety of construction equipment, parts, tools, and supplies that are immediately available when needed.*
- *Distributors' staffs of sales engineers, expert repairmen, and delivery men are always ready to serve construction men with respect to their inevitable repair and replacement problems.*

*That's why* . . . when you must get an important piece of equipment right back into action, the distributor is your best friend.

IT PAYS IN MANY WAYS TO DEAL WITH YOUR LOCAL DISTRIBUTOR.
WORK WITH HIM FROM START TO FINISH ON EVERY CONSTRUCTION JOB.

*Make Distributor's Headquarters Your Service Headquarters*



No. 2 in a series of advertisements sponsored by ENGINEERING NEWS-RECORD and CONSTRUCTION METHODS showing how distributor services aid economical construction

# 2 DOWN-TO-EARTH ANSWERS to

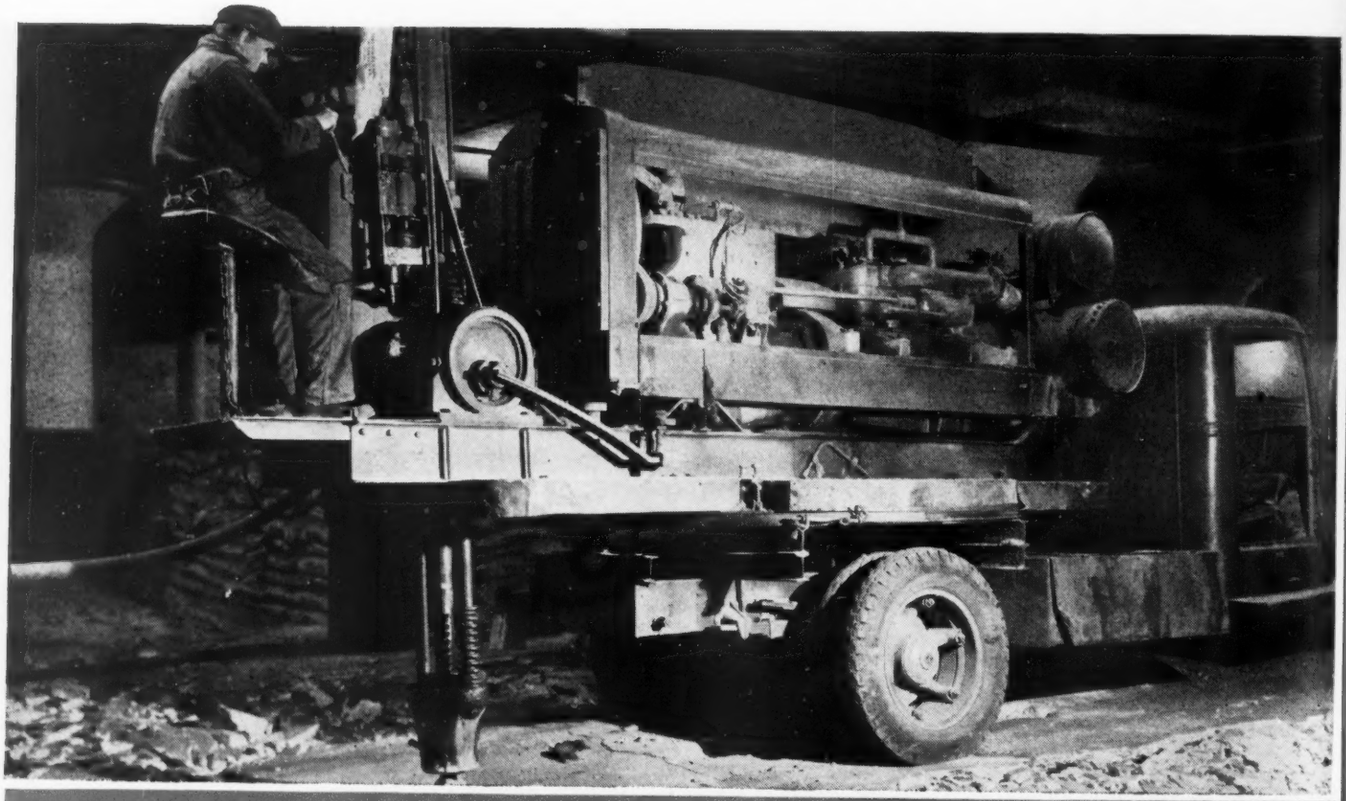
## 1 CORRECT LUBRICATION

### for every part of every machine you operate

MAKES NO DIFFERENCE how big your operation is—or how varied your equipment—Socony-Vacuum can help you put a stop to work stoppages and speed machine output all down the line.

To meet your *individual* needs, we offer: scientifically correct oils and greases that meet every lubrication requirement of air compressors, steam shovels, bulldozers, air tools.

We also offer oils specially designed to help keep Diesel and gasoline engines *cleaner*, better-running . . . lubricants that help protect all types of bearings and gears against friction, heat and wear. Get your Socony-Vacuum Representative's recommendation today.



## *Rely on* SOCONY-VACUUM CONTRACTORS' SERVICE

# Machine Tie-ups, Useless Red Tape!



## 2 TIME-SAVING SERVICE
### for all divisions of your operation

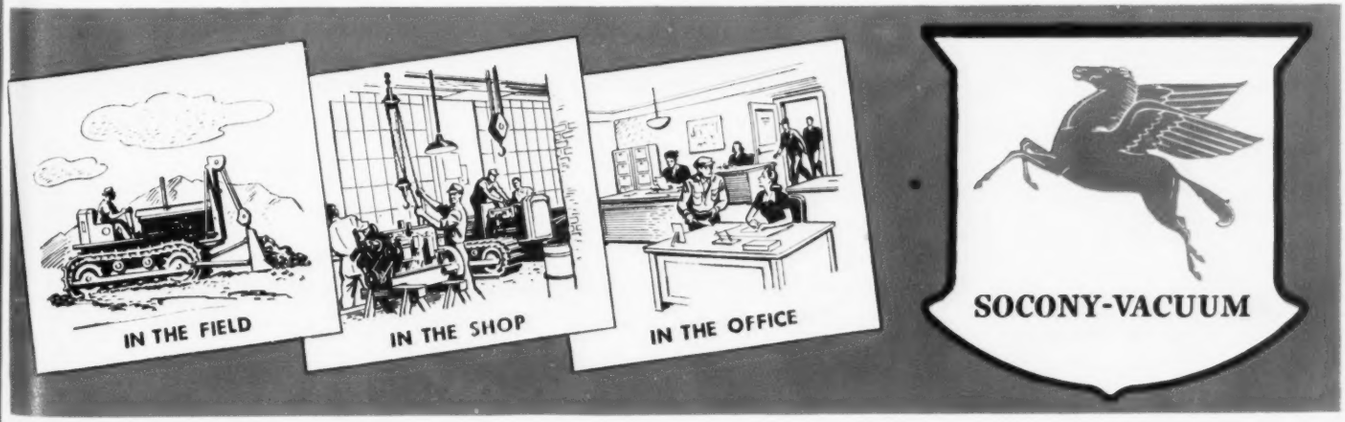
HERE ARE just a few of the ways we help you ease tight work schedules, meet and beat contract deadlines:

1. Supply you with tested maintenance schedules adapted to *your* equipment, *your* set-up.
2. Give you practical help on "problem" machines.
3. Provide information on the Do's and Don't's of Correct Lubrication.
4. Supply the requirements for oils and greases for all of your equipment.
5. Help simplify lubricant inventory problems.

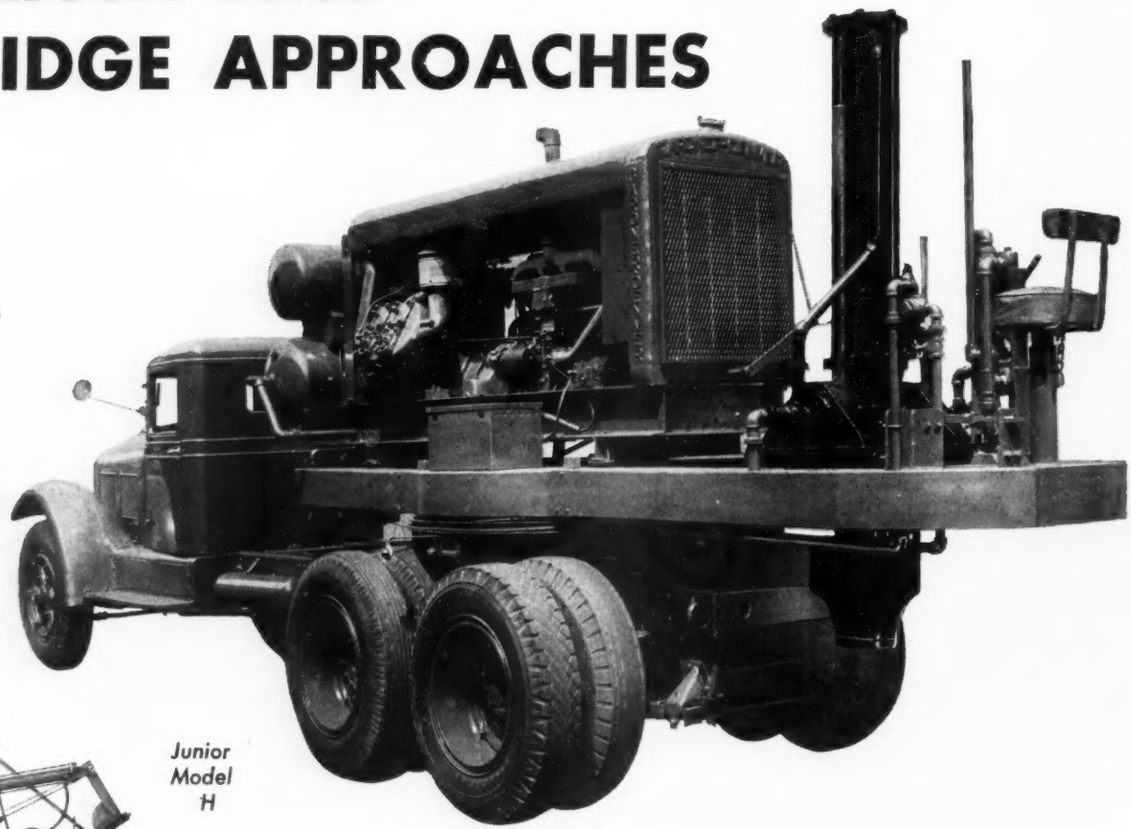
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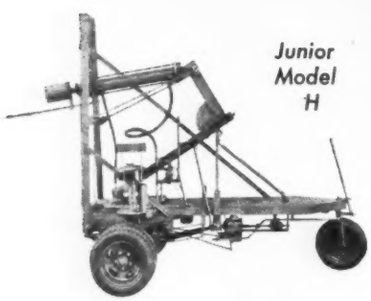
On the job, in the shop and in the office . . . all through your operation, this service saves valuable time! See your Socony-Vacuum Representative today for full details.

SOCONY-VACUUM OIL CO., INC., and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.



# *UNEQUALED* FOR TAMPING TRENCH AND BRIDGE APPROACHES





*Junior Model H*

- Model-H can be converted to vertical machine in 30 minutes.
- Junior Model T for mounting on truck with compressor also available.
- Write for details and prices.



*Junior Model M*

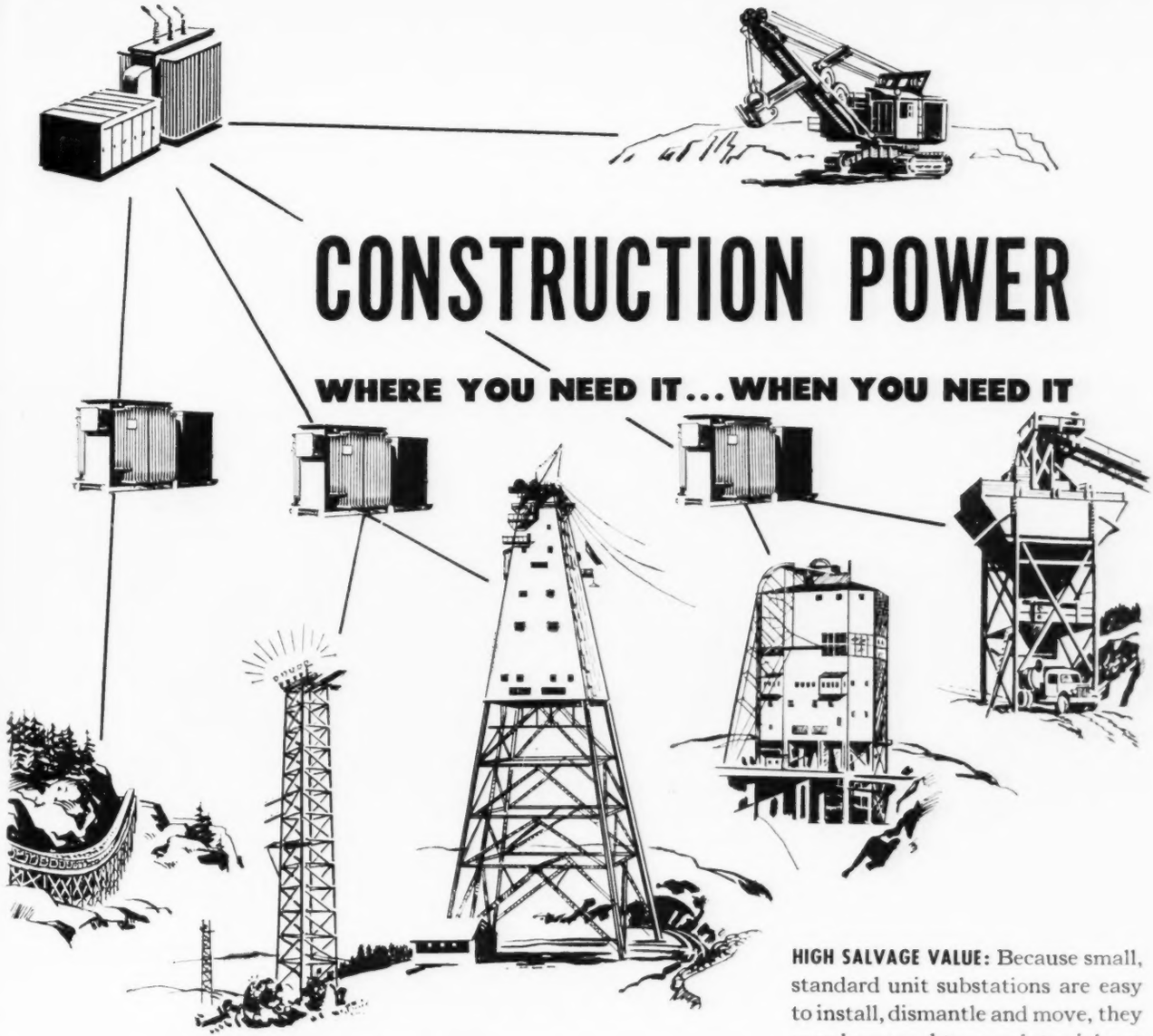
# RAPID

## PAVEMENT BREAKER MACHINES

- Unequaled performance in concrete breaking.
- Fastest pneumatic method.
- Not a drop weight, but a pneumatic controlled blow.
- Average working speed, 55 blows per minute.
- Saves labor-time-dollars.
- Built to have a low upkeep cost.
- Breaks to any size desired.
- Adapted to inside or outside work.
- Increases your compressor output.
- Ideal for cutting trench and tamping backfill.
- The profitable addition to your line of equipment.
- Heavy-duty machine equipped with air motor which pivots the unit on the truck bed.
- Junior Trailer Models are equipped with air motor that propels machine and swings the boom.

**R. P. B. CORP.**

**1517 Santa Fe Ave. Los Angeles 21, Calif.**



# CONSTRUCTION POWER

## WHERE YOU NEED IT...WHEN YOU NEED IT

### Easy to install, move or expand...G-E LOAD-CENTER DISTRIBUTION SYSTEMS offer reliable, flexible power for large construction projects

Here's how General Electric unit substations, used so successfully in strip mining, can be applied to large, long-term construction jobs . . . at a profit. Their high salvage value, portability and ease of installation will appeal to farsighted contractors. Power costs are reduced, too, by locating the substations near their loads, thereby keeping voltage high and cable short and light. Other advantages:

**SAFE:** Metal-clad unit substations combine transformers and circuit-breakers in one factory-assembled package; breakers protect your equipment from overload, the metal enclosure protects personnel from injury.

**EASY SERVICING:** Maintenance personnel work *on the ground* safely, quickly; no poles to climb.

**ECONOMICAL:** Evaluating the good voltage regulation, short-circuit protection and high service continuity provided, G-E load-center distribution systems give you more for your power-equipment dollar.

**HIGH SALVAGE VALUE:** Because small, standard unit substations are easy to install, dismantle and move, they may be moved to your later jobs at a substantial saving in man-hours.

These are only a few of the advantages of modern load-center distribution systems for construction work. Let your G-E representative show you the entire picture; he will study your power requirements and help you select the best system for your particular needs. *Apparatus Department, General Electric Co., Schenectady 5, N. Y.*

**GENERAL ELECTRIC**

68-61

**ELECTRIFIED CONSTRUCTION**

**BETTER PRODUCT ★ LOWER COST**

# smooth drilling in rough going



Photo—Courtesy Bureau of Reclamation

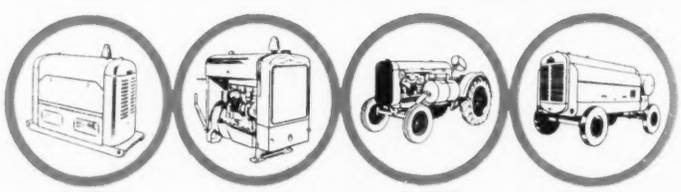
**. . . the flexibility and deep-hole drilling power of Le Roi-Cleveland Wagon Drills pay off on Friant-Kern Canal job**

Whenever you have a tough job of drilling to do — a job calling for deep holes and a wide variety of changes in set-up — take a tip from the experiences of Friant-Kern Canal contractors: Use Le Roi-Cleveland wagon drills.

These versatile machines drill at any angle. No matter how rough the ground is, you can place your holes just where you want them — for better fragmentation, more economical use of powder, and less secondary drilling.

These holes can be drilled to a depth of 40 feet if necessary. The smooth, powerful, 4-inch bore Le Roi-Cleveland drifter sees to that—with its strong, dependable rotation, and jet-like hole-cleaning action.

No wagon drill is more flexible or provides quicker steel changes than easy-handling Le Roi-Cleveland units. Put Le Roi-Cleveland wagon drills to work on your job. Watch your daily footage climb while your drilling costs drop. Your nearby Le Roi distributor can give you further details. Write us for latest bulletins showing important features.



*Le Roi* Engine-generator Set | *Le Roi* Heavy-duty Engine | *Le Roi* 105 Tractair* | *Le Roi* Airmaster*

**LE ROI COMPANY**

CLEVELAND DIVISION
*Manufacturers of Cleveland Rock Drills*
Cleveland 11, Ohio

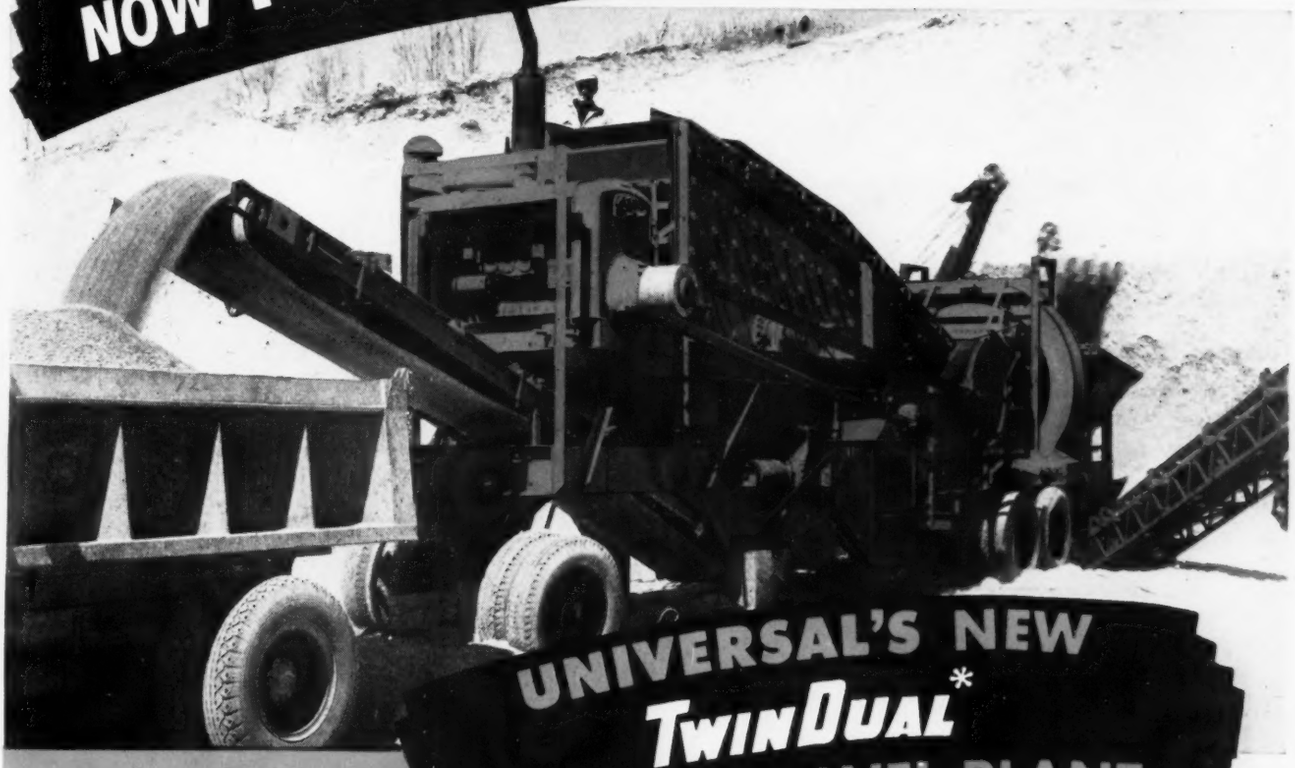
LE ROI COMPANY, General Offices, Milwaukee 14, Wisconsin

NEW YORK • WASHINGTON • CLEVELAND • MILWAUKEE
BIRMINGHAM • TULSA • BUTTE • SAN FRANCISCO

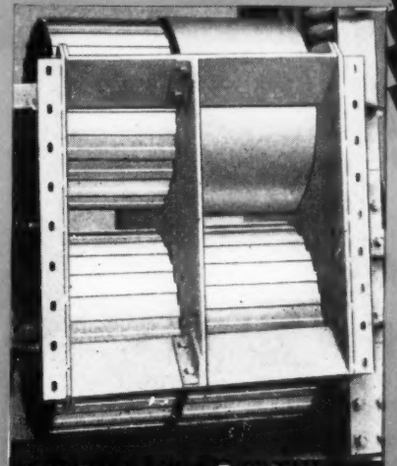
*Reg. U. S. Pat. Off.

RD-11

# NOW TWICE THE YARDAGE



## UNIVERSAL'S NEW TWINDUAL* MASTER GRAVEL PLANT



Feed Opening View TWINDUAL Rolls

*TWINDUAL Rolls, the exclusive patented Universal development which gives two full stages of secondary reduction in one crusher. Its use provides amazing capacity with savings in weight. Permits 100% wider jaw crusher discharge opening, more than doubling its capacity and reducing jaw wear.
*PATENTED

*Top capacity* plus *ready portability,* you get both and *more* in the new **TWINDUAL*** MASTER... the first completely *new* post-war gravel plant. Three full stages of reduction with only two crushers. First stage—jaw crusher; second and third stages—**TWINDUAL*** Rolls. Size for size and weight for weight the **TWINDUAL*** MASTER has no equal for production where crushing must be done. Under identical pit conditions it has produced twice the yardage of larger conventional model plants. Its record smashing capacity, smooth operation with minimum vibration, and remarkably low power requirement is setting an entirely new standard for low cost production of finished aggregate.

**3 STAGES OF REDUCTION WITH ONLY 2 CRUSHERS**

***Complete details available in bulletin 682. Write for it.***

**UNIVERSAL ENGINEERING CORPORATION**

**327 8TH STREET N. W.** **CEDAR RAPIDS, IOWA**

# The LS-SEVENTY LINK-BELT SPEEDER



# Look it Over!

## SEE WHAT MAKES IT A FAVORITE IN THE ¾ YARD CLASS




Jobs using a ¾ yard Shovel-Crane are a large proportion of the average contractor's business. You'll want to know all about the LS-70, a development of Link-Belt Speeder engineering, providing the answer to your problems in this large field of operation.

Almost like seeing the actual machine, you'll say, of this new bulletin—It's all there, the operating functions are laid bare. You'll see features of design and construction your experienced eye will quickly spot as reasons for the superior performance—longer life—lower costs for operation and upkeep that are making this machine a big favorite.

Send for a copy—got the dope on why the LS-70 will solve more of your problems falling in the range of a ¾ yard machine.

Remember—It's convertible, to shovel, crane, clamshell, dragline, trench-hoe, pile-driver—a real multipurpose multi-profit machine.

10,812

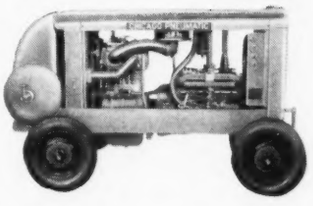
**LINK-BELT SPEEDER**

LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA

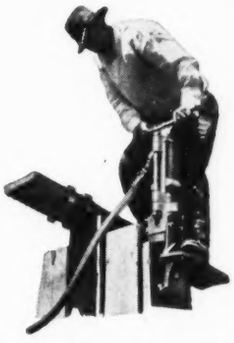
*Builders of the Most Complete Line of*
**SHOVELS-CRANES-DRAGLINES**

# it can be done efficiently with CP construction equipment

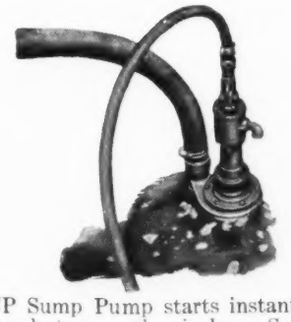




You can count on fuel savings of 15% to 35% with a CP Portable Compressor, with its economical engine and gradual speed regulator. Models from 60 to 315 c.f.m., gasoline-driven; from 105 to 500 c.f.m., Diesel-driven.



Four feet a minute through gravel is easy with CP-116 Sheeting Driver.



CP Sump Pump starts instantly; simply turn on the air, lower Sump Pump into water and pumping begins.

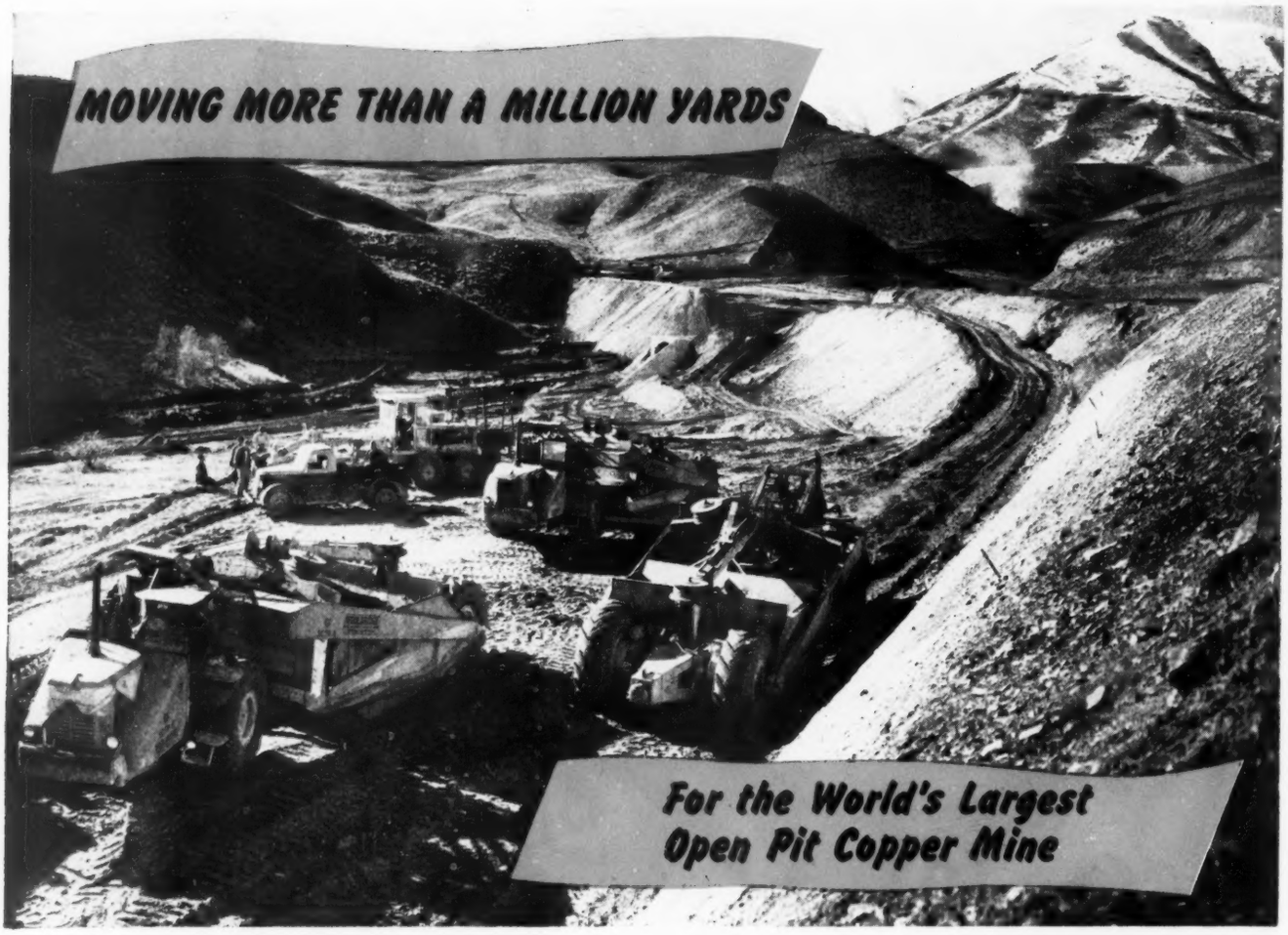
***One of the many outstanding CP time-savers*** for contractors is the G-200R lightweight Wagon Drill. With its three roller-bearing, pneumatic-tired wheels, it can be moved with ease and speed, even over rough ground, and it will drill holes at any angle. Designed for one-man operation, and fast drilling with the more powerful CP drifter drills.

The complete line of CP construction equipment includes sinker drills, impact wrenches, backfill tampers, sludge pumps, etc. Your CP representative will gladly give you full information on whatever tools you need for any particular job—or write for Catalog 600.

**CHICAGO PNEUMATIC TOOL COMPANY**

General Offices: 8 East 44th Street, New York 17, N. Y.

**ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES**
**PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES**




UTAH CONSTRUCTION COMPANY JOB, BINGHAM TO GARFIELD, UTAH

## —With a Fleet of Wooldridge Terra-Cobras



WOOLDRIDGE TERRA-COBRAS employ the same Bowl features as Wooldridge "Terra-Clipper" tractor-drawn Scrapers

Enlarging the railroad access road to the world's largest open pit copper mine near Bingham, Utah, a fleet of six Wooldridge high-speed heavy-duty Terra-Cobras teamed with six rugged Terra-Clipper scrapers to move more than a million yards of dirt, rock and gravel. Under hot and dusty as well as cold and muddy operating conditions, Terra-Cobras handled capacity loads at speeds up to 17 M.P.H. on round-trip hauls from 2000 to 12,000 feet. Ample power, high speed, positive traction, and effortless hydraulic two wheel steering control assure the Terra-Cobra's high production performance at lower costs per yard. For faster earthmoving on long and short hauls, investigate Wooldridge Terra-Cobras. Write today for full details.

**Measure Each Job in terms of WOOLDRIDGE EQUIPMENT:**

- ★ High Speed EARTHMOVERS
- ★ Tractor-drawn SCRAPERS
- ★ BULLDOZERS
- ★ TRAILBUILDERS
- ★ RIPPERS
- ★ POWER CONTROLS

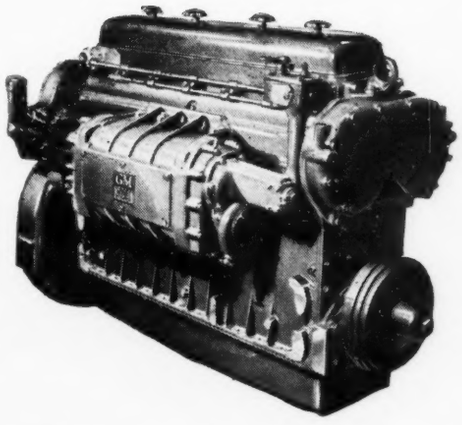
**WOOLDRIDGE**

**TERRA COBRA**

HIGH SPEED-SELF PROPELLED

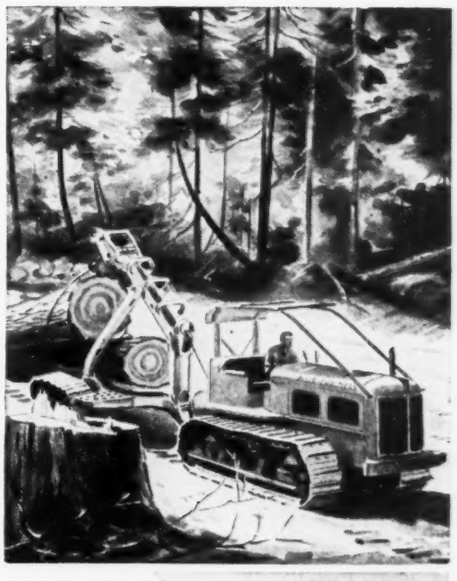
**EARTHMOVERS**

**WOOLDRIDGE MANUFACTURING CO.**
SUNNYVALE, CALIFORNIA
**NATIONWIDE SERVICE**



# a Smooth Powerful Pull—

because—



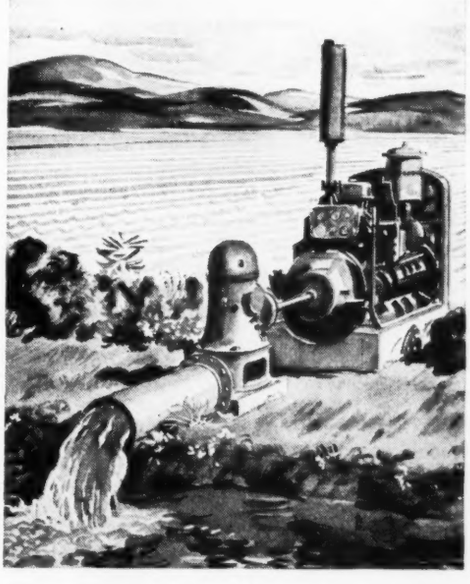
## There's power at every downstroke!

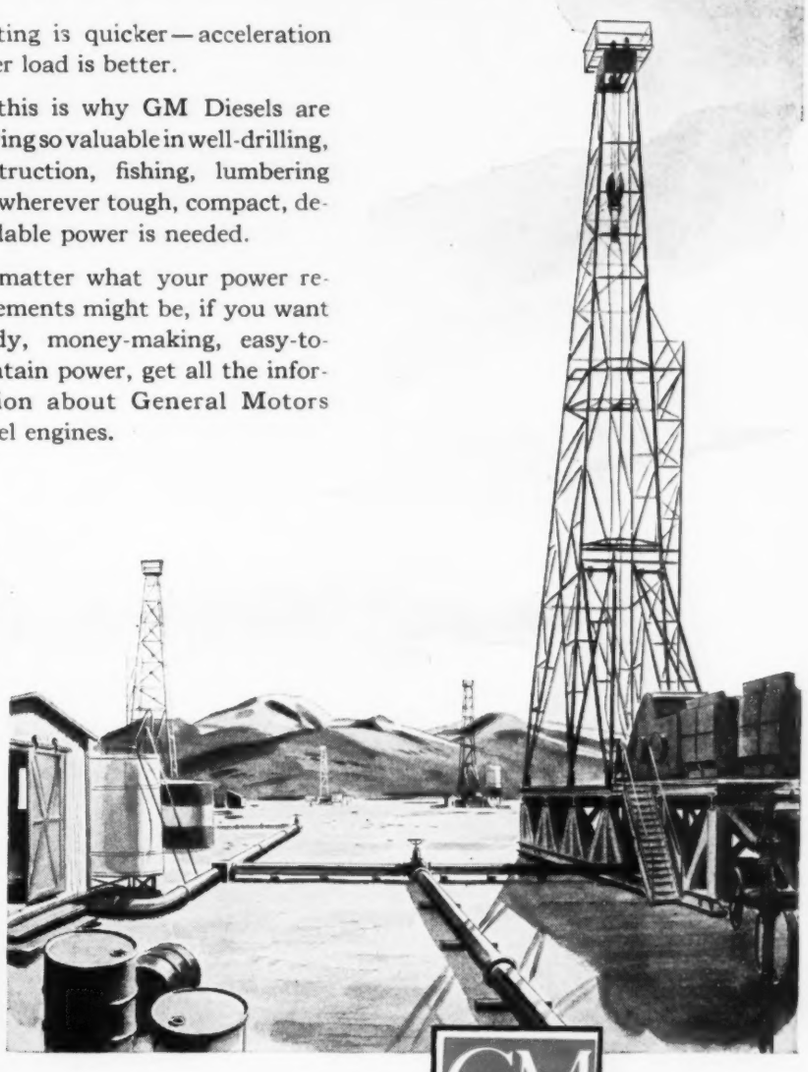
Is yours one of the many industries where power must be smooth and steady—where even the life and worth of the driven equipment depends upon the constant regular pull of the engine?

Such smooth and steady pull is an outstanding characteristic of the General Motors Diesel engine. It is the result of this engine's 2-cycle operation with power at every downstroke. Each piston pushes with each turn of the crankshaft. Starting is quicker—acceleration under load is better.

All this is why GM Diesels are proving so valuable in well-drilling, construction, fishing, lumbering and wherever tough, compact, dependable power is needed.

No matter what your power requirements might be, if you want sturdy, money-making, easy-to-maintain power, get all the information about General Motors Diesel engines.





**DETROIT DIESEL ENGINE DIVISION**

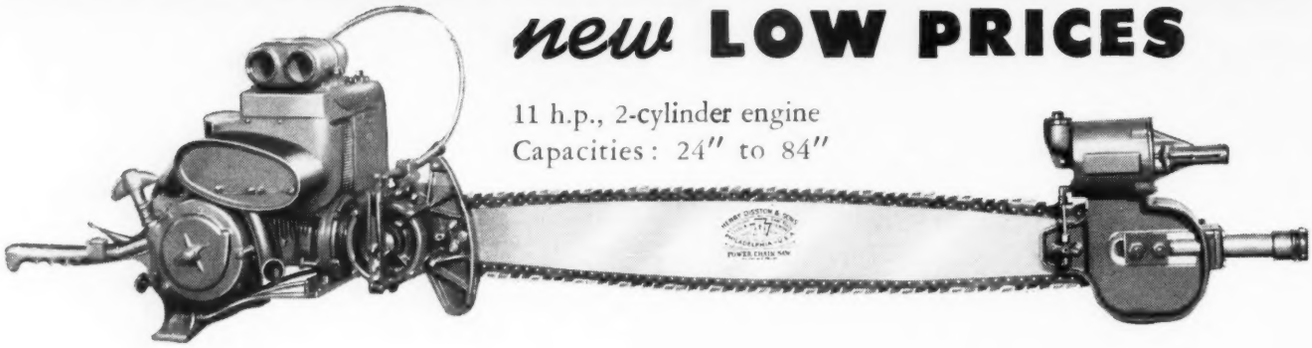
DETROIT 23, MICH. ● { SINGLE ENGINES .. *Up to 200 H.P.* / MULTIPLE UNITS .. *Up to 800 H.P.*

**GENERAL MOTORS**

GM GENERAL MOTORS DIESEL POWER

***DIESEL BRAWN WITHOUT THE BULK***

# DISSTON CHAIN SAW
## with Mercury Gasoline Engine



## new LOW PRICES

11 h.p., 2-cylinder engine
Capacities: 24″ to 84″

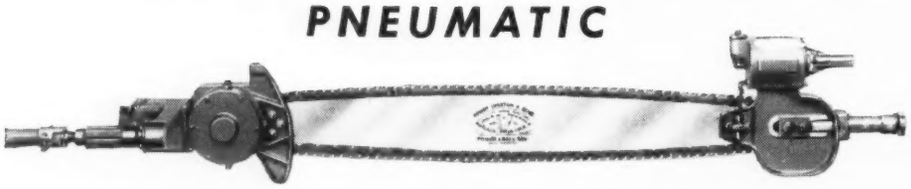


The Disston Chain Saw is the fastest, timber-cutting, portable saw ever made. It is ruggedly built, light in weight, easy to operate, and cuts from all angles. And its numerous exclusive features combine to make it the most dependable, economical and durable chain saw ever made.

Among these features are an 11 h.p., 2-cylinder engine; a positive-acting, non-slip, multiple-disc clutch; a detachable air cleaner which keeps dust from carburetor; die-cast engine cylinders and cooling fan; gear driven magneto; fuel filter built in tank; a tough, cutting chain of Disston Steel which maintains perfect contact with drive sprocket under all load conditions.

The Disston Chain Saw is a product of Disston saw-making skill and dependability. It's a typical example of the economy of Disston quality. Thousands are now in use on operations of many kinds—in the forests; on railroad contracting, and tree service jobs; at shipyards and manufacturing plants—wherever there are heavy timbers to cut.

# DISSTON CHAIN SAW
## PNEUMATIC

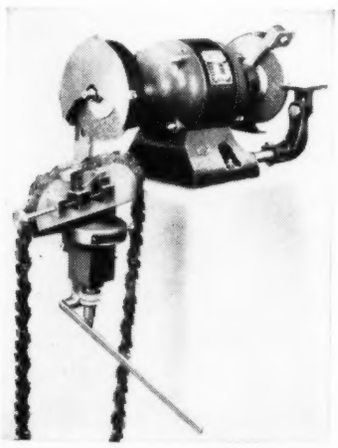


### HUNDREDS OF APPLICATIONS

A powerful, light weight, air-driven saw that is speeding up timber cutting and reducing costs for general contractors, railroads, shipyards, and many other users. It requires no previous experience to operate, and can be used in all climates and weathers . . . even under water.

Gear housing and saw mechanism may be rotated in either direction for vertical or horizontal cutting. Equipped with heavy-duty, vane-type motor specially engineered and produced by Chicago Pneumatic Tool Company for use on Disston Chain Saws. Requires little maintenance as it is built for long, economical service.

3½ and 5 h.p. motors in 24″ and 36″ sizes. The 3½ h.p. motor requires 90 cu. ft. of air per minute, the 5 h.p. motor, 150 cu. ft., each at 90 lbs. pressure per sq. in.



## DISSTON ELECTRIC CHAIN SAW SHARPENER

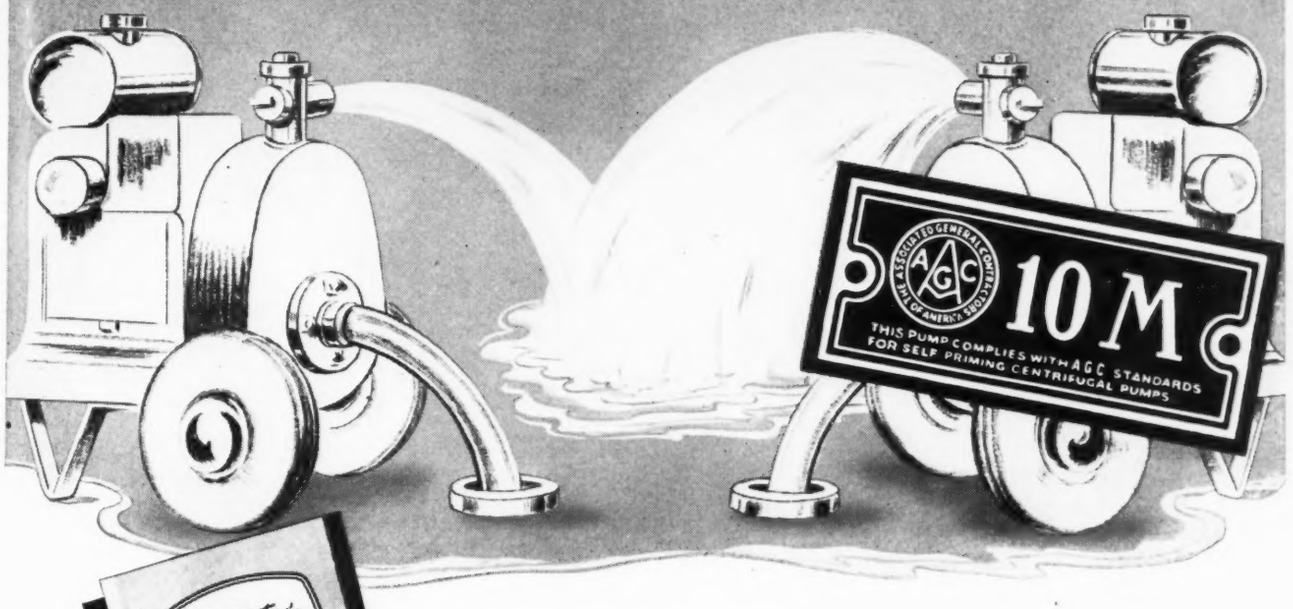
Enables you to do your own sharpening . . . quickly, easily, accurately. Keeps chains in first class condition.

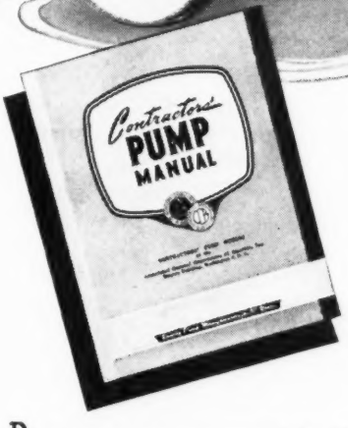
Write for full particulars, or see your Disston Distributor, who carries complete stocks of parts and is prepared to render prompt and expert service.

**HENRY DISSTON & SONS, INC., 948 Tacony, Philadelphia 35, Pa., U.S.A.**

# NOT THE "SIZE" OF THE PUMP...

## but what it will do - that's what the AGC plate tells you




BE SURE you get your copy of this Users' Pump Manual, prepared by the Contractors Pump Bureau. Contact your distributor or write any of the Companies listed below.

NOT the size of the pump, but what it will do is the only way to rate a pump. And an AGC rating carried on the pump tells its capacity at a glance — tells accurately and fairly what it will *do*.

When you buy a pump carrying an AGC rating, you can be sure of its capacity. Look for the AGC rating plate on your next pump. It's there for your protection. It's free insurance that the pump you buy will deliver the capacity set up for it by the AGC Contractors Pump standards. It's the only way to buy a pump.

ASSOCIATED GENERAL CONTRACTORS OF AMERICA — AGC — COOPERATIVE CONSTRUCTION — BUREAU — CPB

**CONTRACTORS PUMP BUREAU**
(ESTABLISHED 1938)
*Affiliated with*
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.

BARNES MANUFACTURING CO.
Mansfield, Ohio

CHAIN BELT COMPANY
Milwaukee, Wis.

JAEGER MACHINE COMPANY
Columbus, Ohio

C. H. & E. MANUFACTURING CO.
Milwaukee, Wis.

CONSTRUCTION MACHINERY CO.
Waterloo, Iowa

MARLOW PUMPS
Ridgewood, N. J.

WORTHINGTON PUMP & MACHINERY CORP.
Holyoke, Mass.

STERLING MACHINERY CORP.
Kansas City, Mo.

CARVER PUMP COMPANY
Muscatine, Iowa

THE GORMAN-RUPP COMPANY
Mansfield, Ohio

NOVO ENGINE CO.
Lansing, Mich.















# IF THE JOB IS IMPORTANT . . . THEY SPECIFY SCHRAMM

•

# ANY TIME

•

# ANY WHERE

•

Here you see 7 construction jobs being furnished compressed air by Schramm Air Compressors. Every one of the jobs is tough . . . but easily handled by Schramm, who furnishes all the air needed.

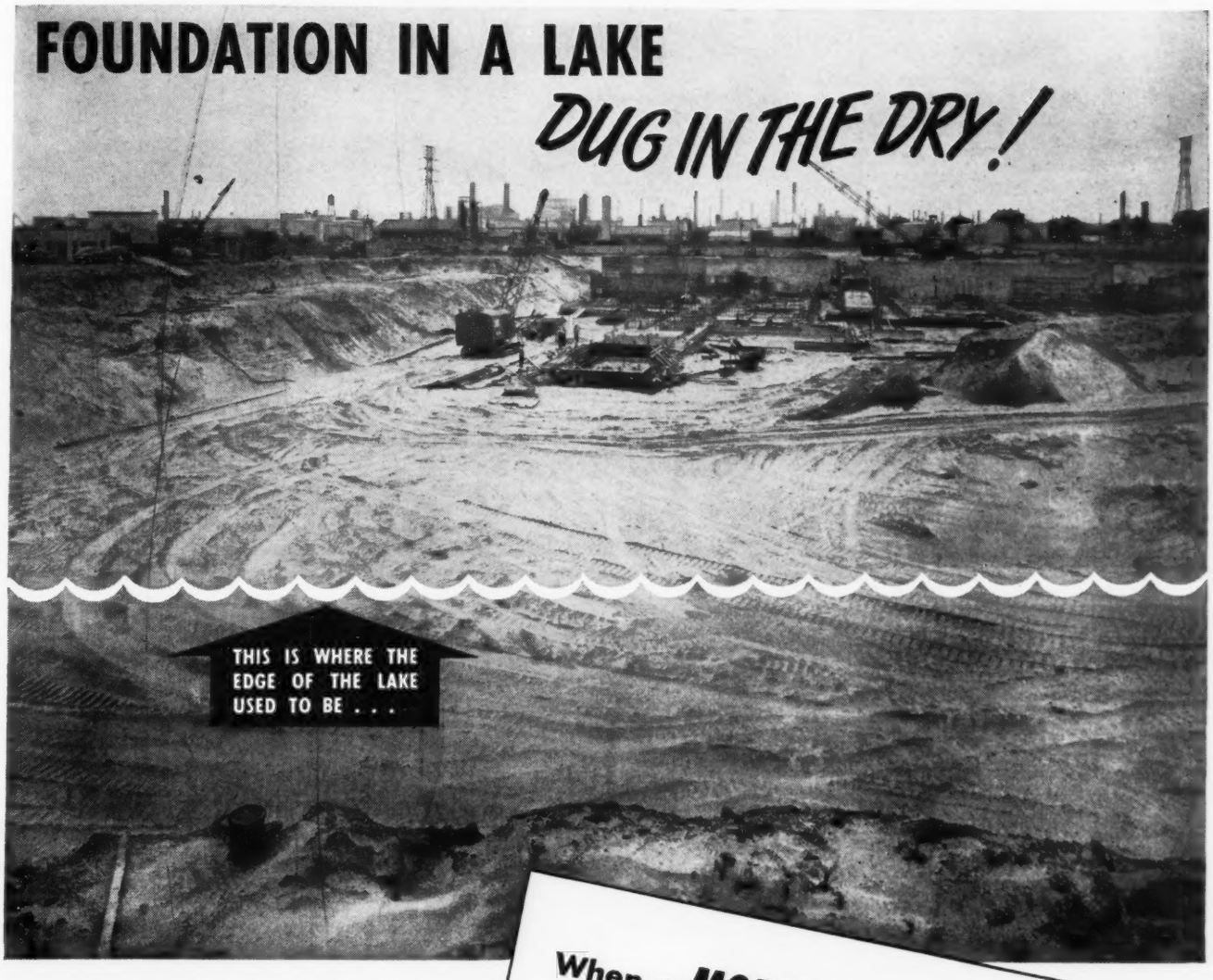
Throughout the country you will find Schramm Compressors used in construction work, specified because they are versatile, compact, lightweight. Schramm offers many advanced features. For full details write us today.

# SCHRAMM INC.

**THE COMPRESSOR PEOPLE**

**WEST CHESTER • PENNSYLVANIA**

# FOUNDATION IN A LAKE
## DUG IN THE DRY!




*415' x 250' excavation at Whiting, Ind. — water level lowered 18' by Moretrench Wellpoint Equipment. Sheeting eliminated. Contractor: E. J. Albrecht Co., Chicago, Illinois.*

**When a MORETRENCH WELLPOINT SYSTEM takes over, water doesn't have a chance. Economical, dependable—it's a time and money saver on any wet job.**

Send for an estimate on predraining your work. Whether the project is large or small, we'll welcome the opportunity of showing you how it can be dewatered economically.

**MORETRENCH CORPORATION**

90 West St. New York 6 | 3037 S. Christiana Ave. Chicago 23, Illinois | 7701 Interbay Blvd. Tampa 6, Florida | 315 W. 25th St. Houston 8, Texas | Rockaway New Jersey



Workmen place Bethlehem Bar Mat in top of concrete slab. Nearly 93,000 sq yd of mats were used in this new road.

# New 6½ mile Stretch in Highway to Thousand Islands



Joseph Sullivan (left), Engineer, N. Y. State Dept. of Highways, checks a detail of the job with Charles Cunningham, Superintendent (center), and Jack Canino, Office Superintendent, of Bero Engineering and Construction Co.

Long popular with motorists approaching the Thousand Islands from the west, New York's Route 3 originates at Hannibal, travels eastward some fifteen miles, then swings abruptly north to skirt the eastern fringe of Lake Ontario.

These photographs show recent construction of a new 6½ mile, 2-lane stretch of Route 3 from Fulton to Palermo. Bero Engineering and Construction Co., Buffalo, is the general contractor. Bar mats and reinforcing for two concrete bridges, furnished by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation*

## STEEL FOR HIGHWAYS

Road Joints • Reinforcing Bars • Bar Mats • Guard Rail
Tie-Rods • Guard Rail Posts and Brackets • Spikes
Wire Rope and Strand • Hollow Drill Steel
Fabricated Structural Steel • Bolts and Nuts
Sheet and H-Piling • Timber Bridge Hardware

BETHLEHEM STEEL



Truck empties batch into the paver skip. Note Bethlehem Bar Mats in foreground, ready for placing.



Sticky stuff! With bar mats covered, workers spade excess concrete ahead of screed. Second screed in background.



With aggregate and bulk cement hoppers close at hand, trucks have but short haul to skip. Strip in foreground is ready for hand finishing.

# "My Truck Had To Have Army Workhorse Power"

*Declares War Veteran John Pajank of West Middlesex, Pennsylvania*



"After 32 months of driving GMC Army trucks through the mud and mire of Pacific jungles, I made up my mind that a GMC was the only truck I'd consider buying for my postwar trucking work. Hauling eight- to nine-ton loads of coal up the steep, muddy grades of a 60-foot open pit mine is almost as tough as some of my war-front hauling jobs. And my new GMC gives me the same rugged, reliable 'Army Workhorse Power' I had in the Pacific!"

• • •

There's a new GMC with war-proved power for your job . . . for every hauling job. For GMC offers a complete line of light, medium and heavy duty models . . . an extensive series of seven valve-in-head gasoline engines and two 2-cycle Diesels . . . a wide range of chassis types up to 90,000 pounds gross weight rating . . . a broad selection of axle, transmission and equipment options.

Built to meet the most rugged requirements, heavy duty gasoline or Diesel GMCs tackle the toughest tasks in the extractive and construction industries. New heavy duty models feature greater horsepower, pressurized cooling, double reduction rear axles and many other engine and chassis advancements that make them even sturdier and stronger for heavy hauling work.

**GMC TRUCK AND COACH DIVISION • GENERAL MOTORS CORPORATION**




***THE TRUCK OF VALUE*** **GASOLINE • DIESEL**

# It pays to STANDARDIZE ON MARLOW

*World's most complete line of Construction Pumps*



*Newest Marlow Construction Pump—The model 430, 40M, with air-cooled power.*

***MARLOW MAKES BOTH TYPES*** . . . self-priming centrifugal and diaphragm.

***MARLOW MAKES THE LARGEST SIZE RANGE*** . . . 1½ to 10-inch sizes; 3,000 to 240,000 GPH.

***MARLOW OFFERS WIDEST POWER CHOICE*** . . . Gasoline or Diesel, air-cooled or water-cooled. Electric-driven. Belt-driven.

***PLUS EXCLUSIVE MARLOW FEATURES*** . . . In the centrifugals: fast, positive self-priming by exclusive diffuser method. In the diaphragm pumps: patented non-clogging valves. And other exclusive features . . .

More pumps in the line, more features in the pumps! There's your assurance of the best pump for the job . . . when you standardize on Marlow.

**MARLOW PUMPS · RIDGEWOOD, NEW JERSEY**

# When Other Machines are Down for Repairs

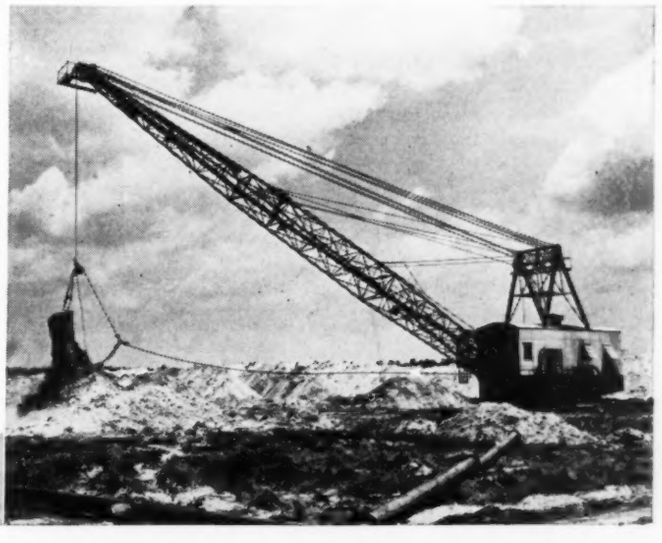



# Bucyrus Walkers are Moving Dirt

The secret of the low maintenance requirements of a Bucyrus-Erie walking dragline lies in its complete simplicity. Look one over from stem to stern — you can't help noticing the absence of intricate gears and shafts, the lack of complicated gadgets that cause trouble and put a crimp in efficiency.

Main machinery parts are big in size, small in number, easy to get at. Walking machinery has nothing more complex than a shaft and a rolling cam, whose smooth rotating and sliding action cushions the machine down without jerk or shock.

Maintenance is low on a Bucyrus-Erie because there's so little that can go wrong. That means more time to make full use of the famous "years ahead" digging action that produces the production results you want!



**Booms: 110 to 250 ft.**
**Buckets: 4 cu. yd. to 25 cu. yd.**

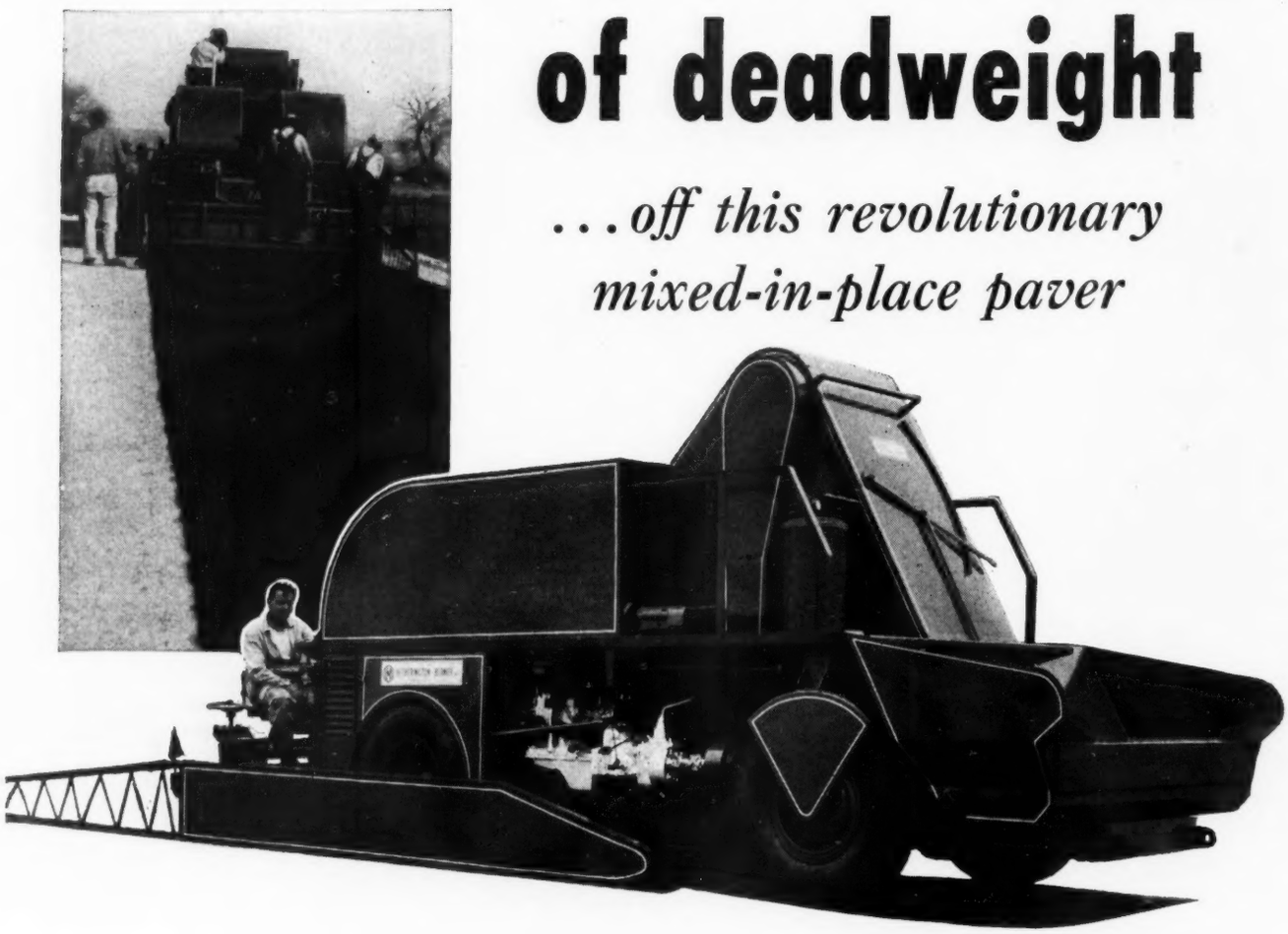
BUCYRUS ERIE

23M47

SOUTH MILWAUKEE, WISCONSIN

# U·S·S COR-TEN trims 3½ tons of deadweight

## *. . . off this revolutionary mixed-in-place paver*



As originally designed, this self-contained paving unit—which mixes and lays bituminous material in one continuous operation—weighed 16 tons (23 tons loaded with materials.) It was so heavy that it was hard to find tires that would stand up under the load.

By using U·S·S Cor-Ten in rolled steel members, weight of the unit has been cut to 12½ tons . . . reducing the drag of deadweight by 3½ tons. Hetherington & Berner, Inc., the builders of this new, highly efficient "Moto-Paver" have found Cor-Ten so satisfactory that they plan to specify it for all future models.

If your equipment is heavier than it needs to be—if you want to reduce its weight without reducing its strength—if you want it to do more, last longer and cost less to run, investigate the advantages of construction with U·S·S Cor-Ten or other U·S·S High Strength Steels.

These superior structural steels are low in cost and easy to fabricate. With them you can obtain practically any combination of desirable properties. Lighter weight. Greater strength. Superior stamina. Better wear resistance. Higher resistance to atmospheric corrosion. Improved performance under shock, impact and fatigue.

Our engineers will gladly show you where U·S·S High Strength Steels can be economically incorporated in your designs to make your equipment more efficient, cheaper to keep up, slow to wear out.

## U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN · U·S·S MAN-TEN · U·S·S ABRASION-RESISTING · U·S·S MANGANESE-NICKEL-COPPER

USS HIGH STRENGTH STEEL UNITED STATES STEEL

7-1066

**UNITED STATES STEEL** AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago & New York
CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh & Chicago · COLUMBIA STEEL COMPANY, San Francisco
NATIONAL TUBE COMPANY, Pittsburgh · TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham
UNITED STATES STEEL SUPPLY COMPANY (Warehouse Distributors), Chicago · UNITED STATES STEEL EXPORT COMPANY, New York

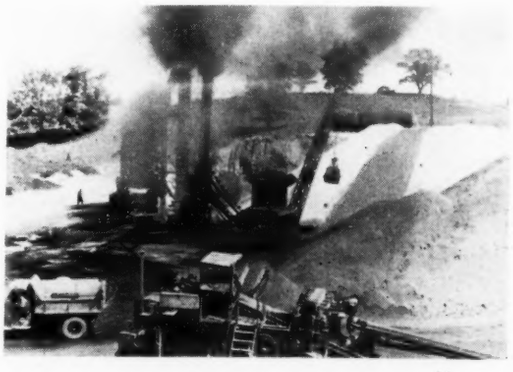
# When U.S. 20 needed resurfacing



## Indiana covered 10 miles with Texaco Asphaltic Concrete



Traffic keeps rolling on U. S. 20, while a mechanical paver lays the new Texaco Asphaltic Concrete surface.



In this efficiently operated plant, the Brooks Construction Company of Fort Wayne, Ind., produced the asphalt mix.

U. S. Route 20 carries heavy traffic across northern Indiana. On a 10-mile section of this important highway near Angola, the concrete pavement no longer provided a smooth-riding surface. The remedy applied by the State of Indiana is the same one successfully employed by many other States for over a quarter of a century. A new wearing surface of resilient, heavy-duty Texaco Asphaltic Concrete has been laid over the existing pavement. This plant-mixed Texaco surface was constructed in two courses, having a combined thickness of three inches.

Texaco Asphalt products have been refined from carefully selected crudes for over 40 years. Their performance has won the confidence of road builders throughout the United States and abroad. Whatever the requirements of your street, highway or airport, from heavy-duty pavement to dust-laying, there is a Texaco Asphalt Cement, Cutback Asphalt or Slow-curing Asphaltic Oil exactly suited to your need.

*For help with a paving or maintenance problem, call on a Texaco engineer, who is an Asphalt specialist. Write our nearest office.*

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO

# TEXACO ASPHALT

■ Collector ditch and relief wells, Sardis Dam, Vicksburg Engineer District, Vicksburg, Miss. Lehigh Sulphate-Resisting Cement was used in the concrete. *General Contractor:* Anderson Bros., Houston, Texas; *Sub-Contractor:* Shanahan Construction Co., St. Louis, Mo.

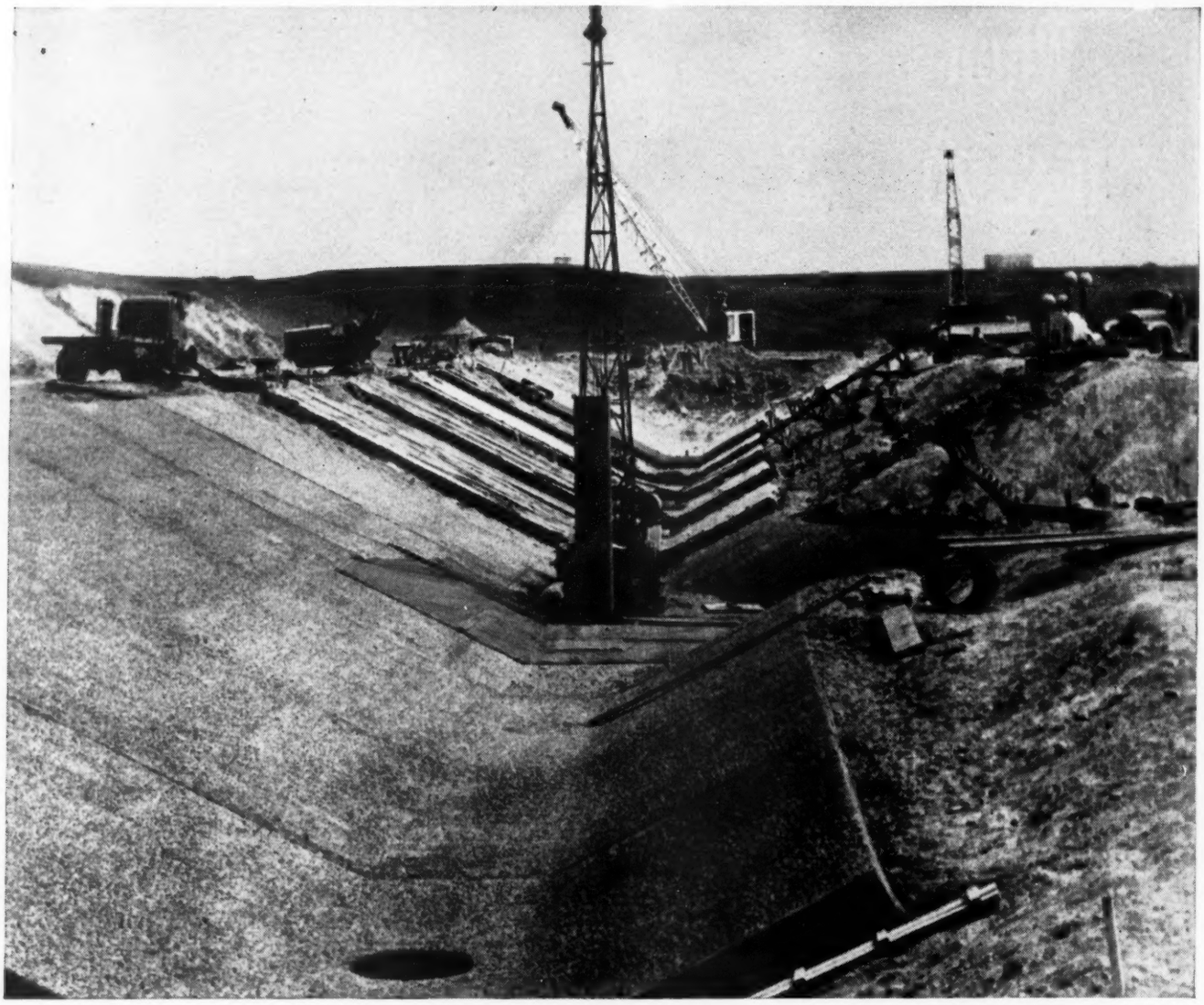


PHOTO SUPPLIED BY U.S. ARMY ENGINEERS

# The contractor asked a $64 question ..... Lehigh had the right answer

■ The U. S. Army Engineers specified Sulphate-Resisting Cement for the concrete drainage system on the Sardis Dam project, Sardis, Miss.

So rarely is this type of cement used that most contractors never encounter this specification. Yet when the Shanahan Construction Company needed a source of supply, Lehigh had the cement to meet the requirements.

That's the kind of service engineers and contractors have come to expect from Lehigh over the last 50 years.

Lehigh CEMENTS

**LEHIGH PORTLAND CEMENT COMPANY**
ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

**LET THE LEHIGH SERVICE DEPARTMENT WORK WITH YOU ON YOUR SPECIFIC PROBLEMS**



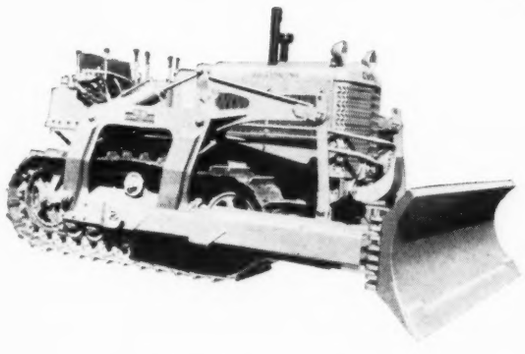
# Uncover larger earthmoving *Profits*

## . . . roll back the dirt quickly with Heil Hydraulic Bulldozers

The dirt really rolls back when you use a Heil Hydraulic Bulldozer. Yardages are bigger — costs lower. The secret of this unequalled rolling action lies in the design of the Heil Bulldozer blade. The scientific contour of this blade, developed after many years of earthmoving experience, provides a cleaner cutting action and a bigger load-carrying capacity without increasing size or weight. The cutting edges, made of special wear-resistant steel, are reversible. The additional life gained is just another of many Heil cost-cutting features. Here are a few more that save you time and money on any job:

The easy-handling, trouble-free Heil hydraulic unit provides quick finger-tip control. The positive action enables the operator to place the blade exactly where he wants it — he can dig faster and move more dirt. The all-welded, box-section construction, the sturdy connections, and the proper distribution of loads and stresses keep your tractors on the job longer — making bigger profits for you. Install a Heil Hydraulic Bulldozer on your Oliver-Cletrac as soon as possible. It's an easy, quick mounting job. See your Oliver-Cletrac distributor.

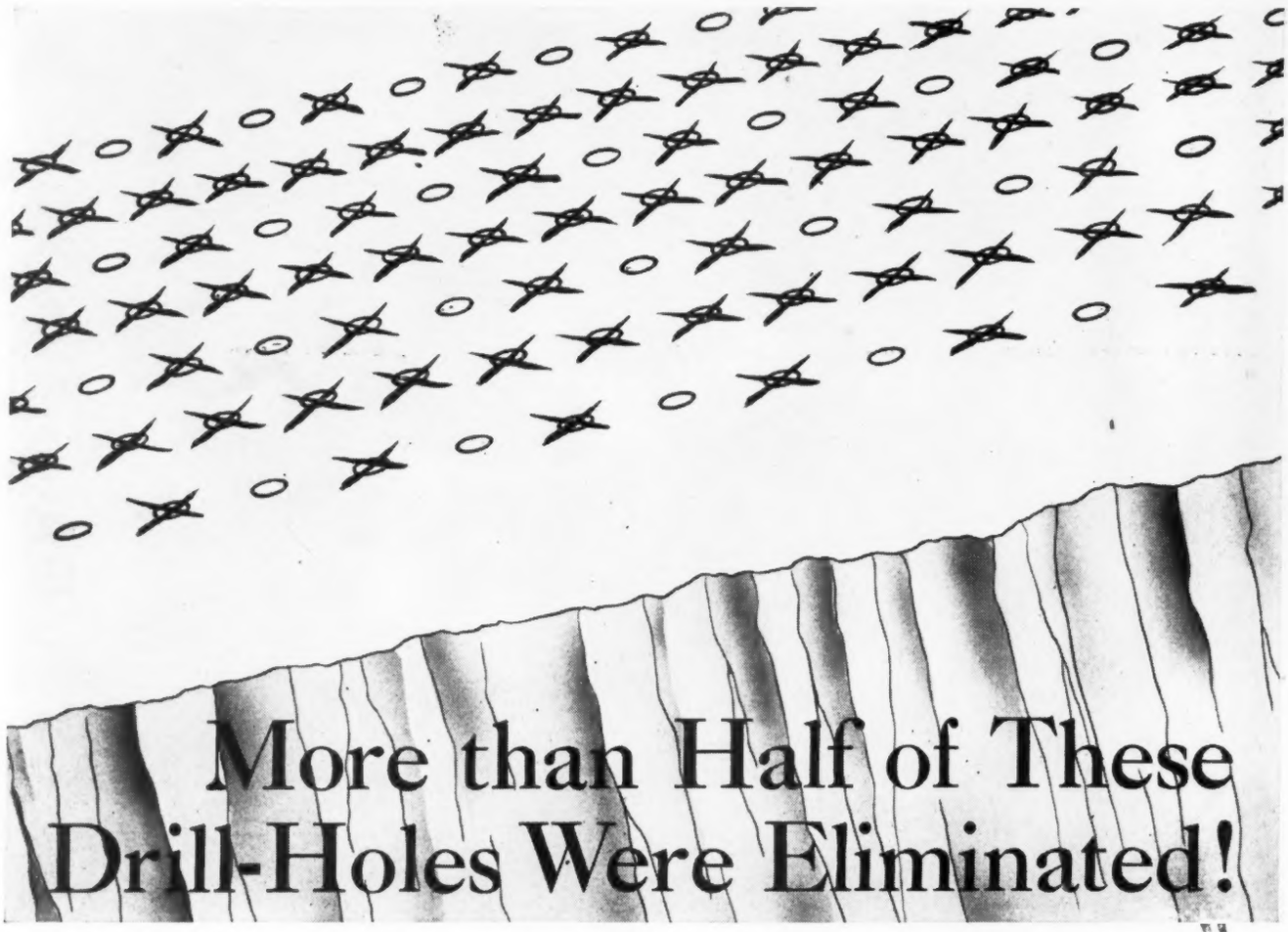
R-92



*Heil Trailbuilder blades have the same scientific contour as Heil bulldozers. One man can change the blade angle in less than 5 minutes. The end tilt adjustment also can be made quickly and easily — there are no bolts, nuts, or wedges to handle.*

**THE HEIL CO.**

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN



# More than Half of These Drill-Holes Were Eliminated!

This story will sound almost unbelievable to many quarry, construction and mining men accustomed to ordinary methods of blasting.

A reduction of over 50% in drilling costs and dynamite costs! That's the experience of a well-known Tennessee limestone quarry—due to using the original Rockmaster Blasting System developed by Atlas.

This quarry had made a practice of spacing drill holes on 4-foot centers. Hundreds of holes had been drilled in advance for seven-row shots. When the Rockmaster system was introduced, our representative recommended loading only every other hole and every second row. His suggestion was adopted, as shown in the diagram. Over 70% of the holes already drilled were left unloaded!

Results were astounding. Breakage was *exceptionally good*, better than had ever been obtained before! Future plans call for drilling holes on 8-foot centers (or even greater.)

Of course, results vary according to the problems of the job. But this is no isolated case of economy. Hundreds of engineers are praising the Rockmaster system for greatly increased fragmentation of burden, for increasing production and cutting costs. At the same time, Rockmaster cuts down on objectionable noise and vibration in many instances.

The Rockmaster system is based on millisecond delays between holes, accurately controlled by Rockmaster electric detonators. Explosives and methods of loading are a part of the system, so that each shot is tailor-made to suit requirements.

Call in the Atlas representative and ask him what Rockmaster can do for *you*.

ROCKMASTER GIVES YOU THE GREATER SAFETY OF MANASITE DETONATORS



*Less Bark . . .*
*More Bite*




Manasite: Reg. U.S. Pat. Off. "ROCKMASTER"—Trade Mark

**ATLAS** EXPLOSIVES
*"Everything for Blasting"*

CHEMICALS ATLAS EXPLOSIVES

**ATLAS POWDER COMPANY, Wilmington 99, Del.** • *Offices in principal cities* • *Cable Address—Atpowco*




# *Here's* NEW BEAUTY *That Helps Me Sell Concrete!*



"Yes, Sir . . . on every trip, the new 1947 Smith-Mobile's handsome appearance helps advertise my business . . . virtually acts as my concrete salesman."

Smith-Mobile's beauty is achieved largely by functional styling. Mixer engine, transmission, water pump, valve system and all moving parts are completely enclosed in a streamlined housing. And these improved Smith-Mobiles are easy to keep handsome . . . easy to "hose off" between trips. The roomy charging chute prevents spilling of dry aggregates or cement. And the perfected drum closing door seals batch in drum . . . keeps concrete from seeping out in transit.

Improved performance goes along with new beauty. Drums are larger, yet overall weight is materially decreased. Dual water injection system prevents freezing in cold weather. Direct-connected motor has 3-point suspension. Simple, lightweight transmission is foolproof. Drum rides on Timken Roller Bearings in rubber-cushioned case.

Four popular sizes. The demand for these improved Smith-Mobiles is still much greater than the supply. But deliveries are being stepped up by greatly increased production. Get the complete Smith-Mobile story — today!

**THE T. L. SMITH COMPANY, 2851 N. 32nd Street, Milwaukee 10, Wisconsin, U. S. A.**




**New Bulletin Just Off the Press!**
Gives you all the facts, dimensions and specifications of the improved SMITH-MOBILE models. If you haven't already received yours, be sure to ask for a copy.

# SMITH MOBILE

*The Original High Discharge Truck Mixer and Agitator*

# BUDA

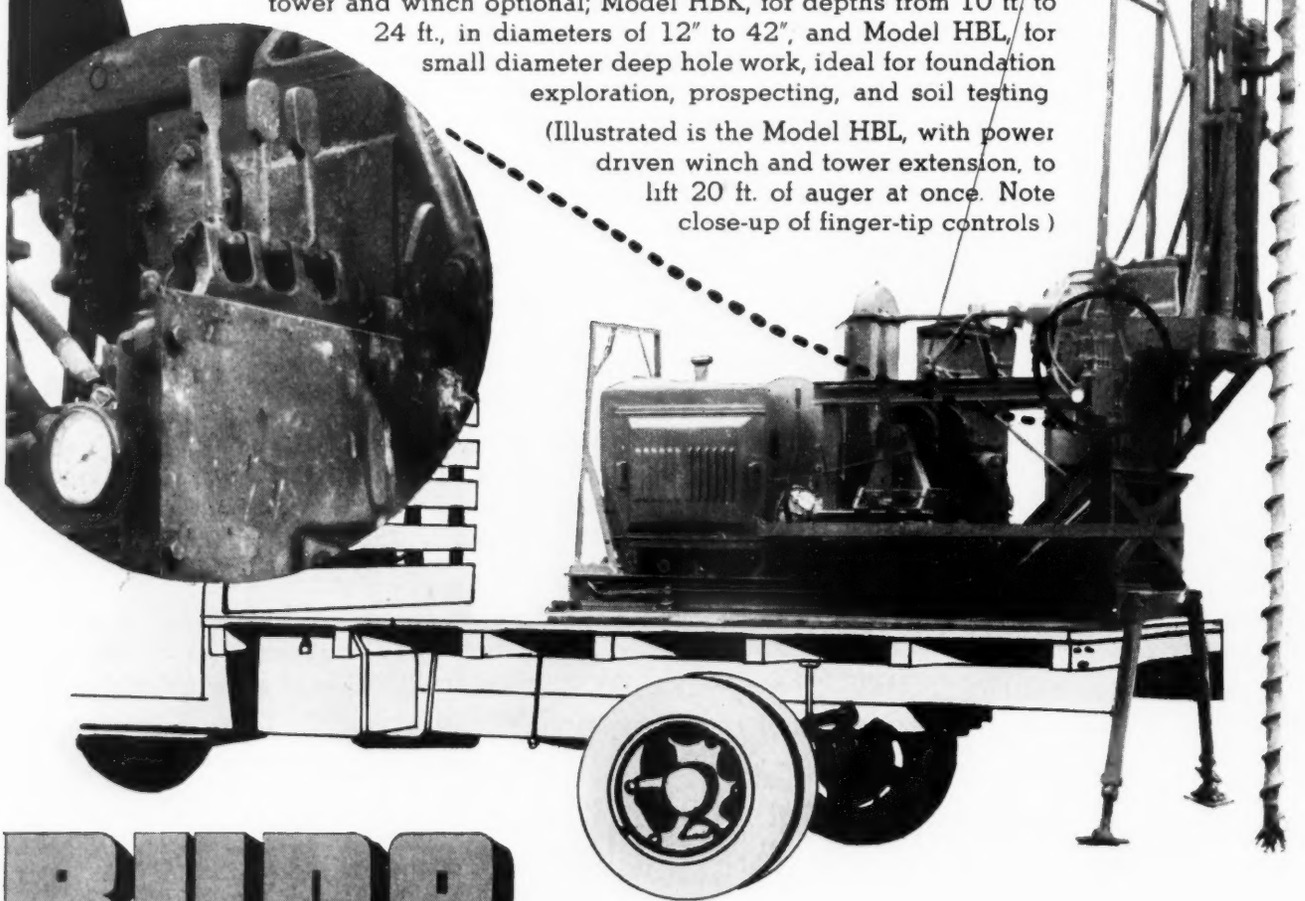
# Announces...

## 3 NEW EARTH DRILL MODELS

## all offering Positive, Finger-tip Hydraulic Control!

This new time and muscle-saving BUDA design permits smooth, simple hydraulic raising and lowering of tower without disconnecting drive coupling . . . controls all levelling and angle adjustments. 3 Models available: Model HBJ—ideal for pole line work including anchor holes, drills from 6" to 42" diam. to a depth of 10 ft., hydraulic power feed into ground. Pole setting tower and winch optional; Model HBK, for depths from 10 ft. to 24 ft., in diameters of 12" to 42", and Model HBL, for small diameter deep hole work, ideal for foundation exploration, prospecting, and soil testing

(Illustrated is the Model HBL, with power driven winch and tower extension, to lift 20 ft. of auger at once. Note close-up of finger-tip controls)



BUDA

15430 Commercial Avenue
HARVEY *(Chicago Suburb)* ILLINOIS

# No need to run





# .... When

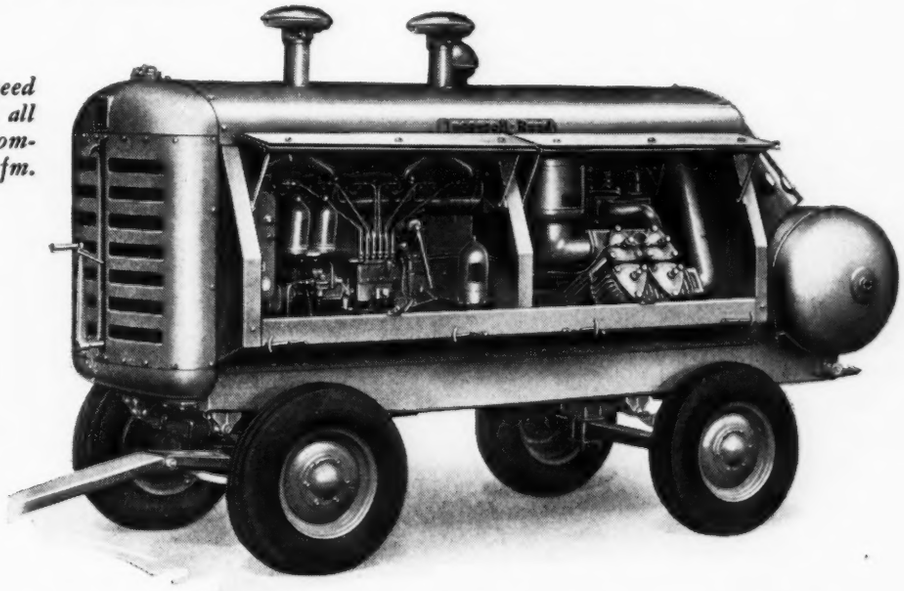
# YOU HAVE TIME TO WALK!

Running when you have time to walk is a waste of energy, especially if you must wait after you get there. Likewise, a portable compressor that always compresses air at its top speed, even though *a much slower speed would often be fast enough,* wastes fuel and causes unnecessary wear.

Ingersoll-Rand's K-Series MOBIL-AIR compressor knows enough to slow down and compress air at a slower speed whenever its full capacity is not required. Its Drill-More Multi-Speed Regulator *automatically adjusts the speed of the compressor to the use of air.* It eliminates wasteful idling... it maintains a lower and more efficient average compressing speed...it saves up to 30% in fuel on an average job. Wear and tear are reduced... MOBIL-AIR lasts longer.

Let Ingersoll-Rand give you full details of MOBIL-AIR Compressors and I-R Air Tools which these machines operate.

*The Drill-More Multi-Speed Regulator is standard on all KA-Series MOBIL-AIR Compressors, sizes 105 to 500 cfm.*

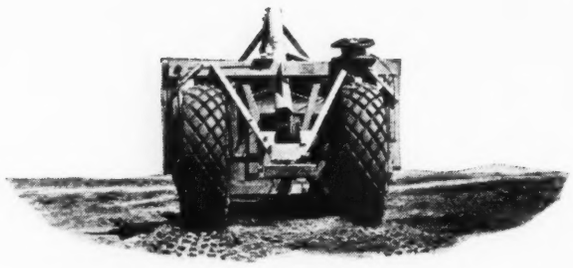


COMPRESSORS
TURBO BLOWERS
OIL & GAS ENGINES
PUMPS
CONDENSERS
AIR TOOLS
ROCK DRILLS

# Ingersoll-Rand

24-2

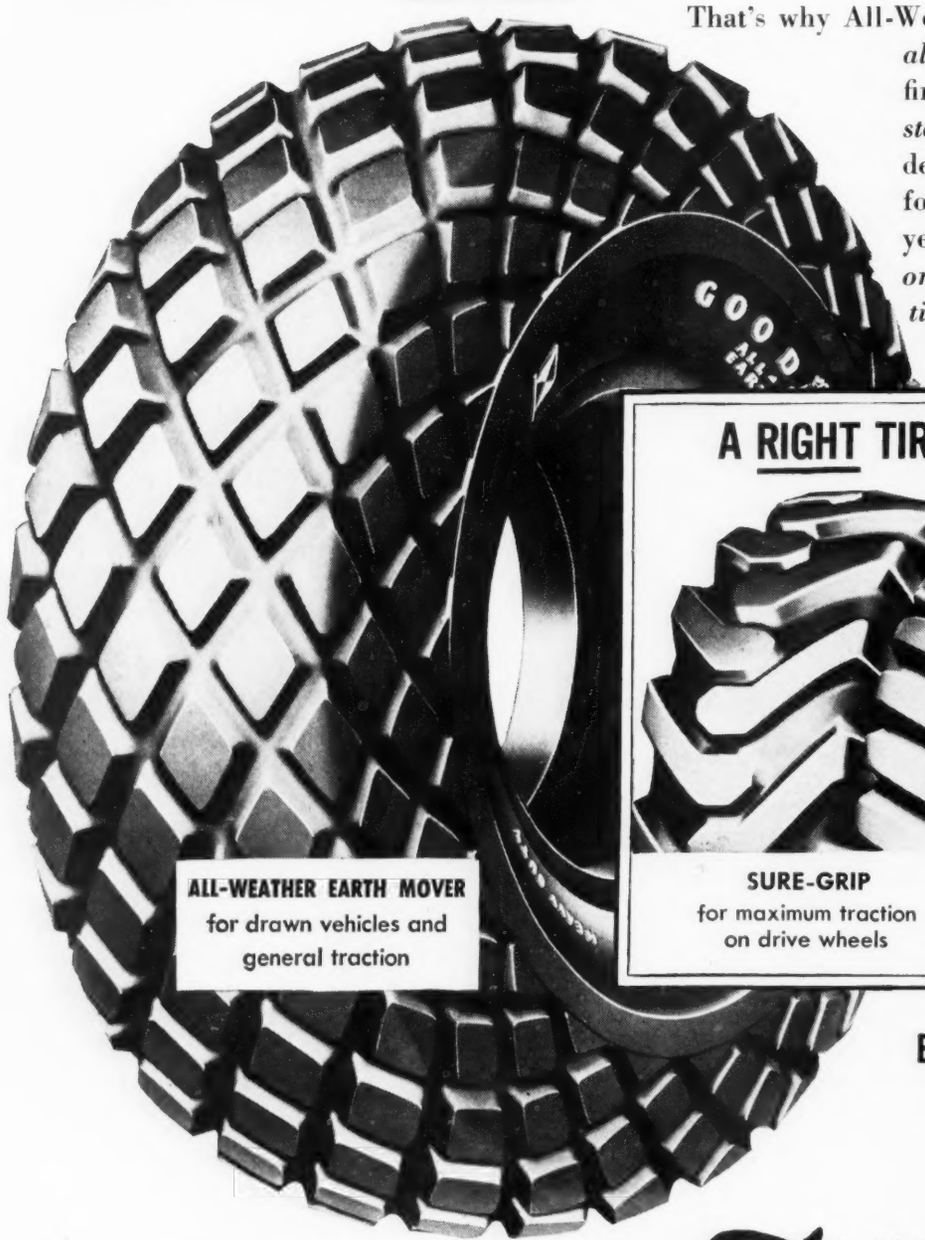
11 BROADWAY, NEW YORK 4, N. Y.



# Right for rolling big loads faster

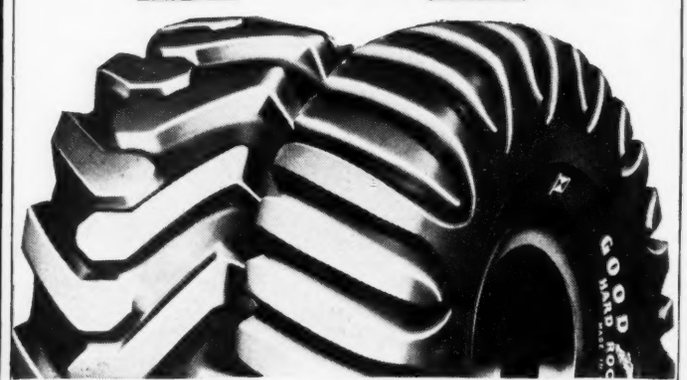
THIS time-proved tire knows no equal on the wheels of drawn vehicles, or for general traction. It's Goodyear's All-Weather Earth Mover, and it's RIGHT for rolling big loads fast at bedrock cost—because its wide, rounded contours prevent deep penetration of the ground surface, reduce skids and slippage, provide sure-footed going.

That's why All-Weather Earth Movers—like *all* Goodyear work tires—are first choice with users. They *stay* first choice because they deliver low-cost, long-life performance. Fact is, year after year, *more yards are moved on Goodyear off-the-road tires than on any other kind!*




**ALL-WEATHER EARTH MOVER**
for drawn vehicles and general traction

## A RIGHT TIRE FOR EACH JOB




**SURE-GRIP**
for maximum traction on drive wheels

**HARD ROCK LUG**
for super stamina in all rock work

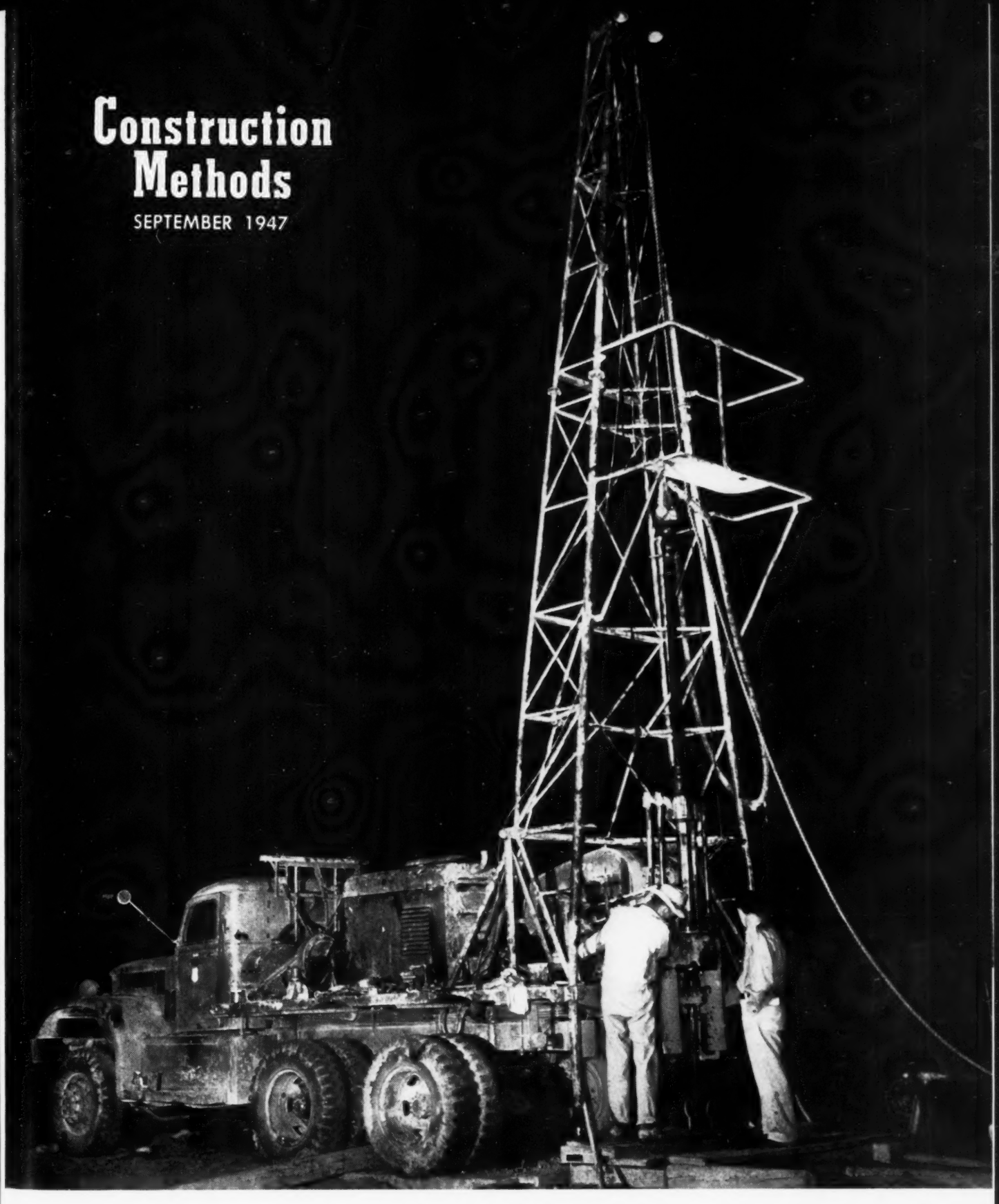
**BUY and SPECIFY**
**GOODYEAR**
*—it pays!*

All-Weather, Sure-Grip—T.M.'s The Goodyear Tire & Rubber Company

# GOODYEAR

**MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND**

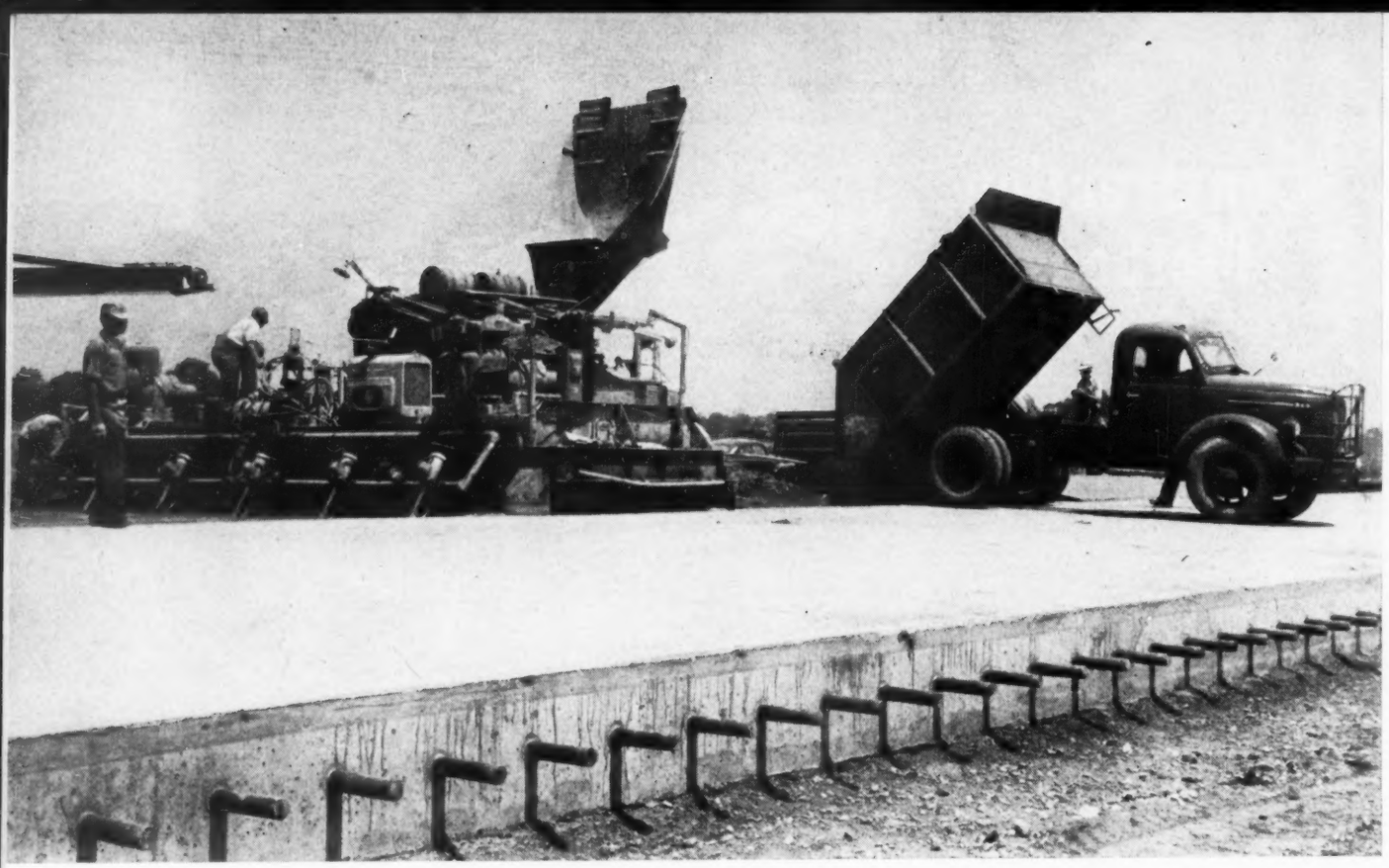
Construction Methods
SEPTEMBER 1947



# Irrigation in Reverse

FOR DRAINING irrigated lands that have become water-logged because of poor subsoil drainage, the U. S. Bureau of Reclamation is experimenting with deep gravel-packed wells on the Gila project near Yuma, Ariz. This striking night view shows Bureau forces drilling a 36-in. well 100 ft. deep with a Failing No. 314 rig. A 16-in. casing of ¼-in. wall pipe, perforated to within 20 ft. of the ground surface, is placed in the wells and the outer space around the casing is packed with coarse gravel. Deep-well turbine pumps, driven by 40-hp. electric motors, installed in the first two wells are discharging about 1,300 gpm. with an effective radius of ¼ mi.

Contract for additional wells has been let to James E. Wright, Indio, Cal. Yuma County Valley Water Users Association is cooperating in the project.



*A VVHB runway...* Dowel-studded 25-ft. strips of 21-in. slab make up into a 300x10,000-ft. runway for Very Very Heavy Bombers (300,000 lb.) at Patterson Field near Dayton O. Accompanying taxiways are 25 in. thick.

# *Patterson Field...*

# Concrete Paving by the Cubic Yard

WHEN CONCRETE RUNWAYS get 21 in. thick as they have on the new strip at the Army's Patterson Field, Ohio, their construction becomes mass concrete production rather than straight paving work. And when Fred I. Rowe, head of W. L. Johnson Construction Co., contractor for the new paving, thinks that a 21-in. runway is a lot of concrete, he ambles over to his nearby partly-completed 25-in. taxiway to look at a thicker slab. But whether you call the job mass concrete or paving, Rowe has assembled the most complete line of grading, concrete and finishing equipment seen on an airport in many a day, and has worked out a smooth-running construction procedure that produces 2,500 ft. of 25-ft. strip per day of two 8-hr. shifts.

It's a big job, equivalent to 93 mi. of 9-in. roadway 24 ft. wide. The main runway, 337,000 sq. yd. (69.6 acres) of 21-in. slab, is 300x10,000 ft. A parallel taxiway 150x8,000 ft., with connections and warm-up apron, calls for 187,500 sq. yd. (38.9 acres) of 25-in. slab. That all adds up to 327,000 cu. yd. Some 7½ mi. of 18-ft. strips 10 in. thick must be removed. Excavation and subgrading will move 859,000 cu. yd. of earth. Drainage involves 6 mi. of 12- to 84-in. concrete pipe, 97 inlets and 19 manholes and junction boxes. Electrical cable totals 32½ mi., carried in 27½ mi. of ducts.

All paving is being placed in 25-ft. strips without expansion joints. Contraction joints every 28 ft. consist of a 3-in. molded strip and 2 in. of poured Carey Seal, a new rubberized type of joint material, for a total of only 5 in. at the top. Reinforcing, set 4 in. from the surface, is made up of transverse strips of surplus steel mesh landing mat, cut into lengths of 24 ft. 6 in. on the job. Four strips, 7 ft. 3 in. wide, make up a section between joints with 6-in. overlaps, leaving a 2-ft. gap at the joints.

Adjacent paving strips are really pinned together, for load-transfer dowels across longitudinal joints are 2½-in. round solid steel bars, each 2 ft. long, set 18 in. c. to c. at midpoint in the slab. Each

dowel weighs 33 lb. and 141,000 are required for the job—2,327 tons in all.

The field lies on a glacial terminal moraine of deep gravel, overlain by clay and silt, some of it very soft, from 4 to 10 ft. thick. In general, grading plans call for stripping all overburden down to firm subgrade and backfilling to grade with selected material compacted to 90 percent maximum density.

All concrete aggregate is obtained from a pit opened up adjacent to the field limits, where an acceptable gradation of materials is available for four sizes: sand, ¾-, 1½- and 3-in. gravel. From the screening and washing plant aggregates are delivered to a nearby batching plant. From here batch trucks feed five Koehring 34-E Twin batch pavers, two at the forms and three set up as a central mix plant. Wet mix tight-body trucks, operating over finished strips, deliver concrete from the central plant to the forms for the first course (17 in.), assisted by one paver at the forms. The second paver alongside the forms pours the 4-in. top course above the reinforcing.

An air-entraining compound known as Darex AEA is added at the mixers at the rate of 1½ oz. per sack of cement.

The story of paving operations is told by the accompanying pictures and their captions. An impressive list of equipment graphically shows what is required to handle a job of this size.

Patterson Field runways are being built for the Army Air Force by the Corps of Engineers under the direction of Brig. Gen. D. L. Weart, Ohio River Division Engineer, and Col. B. B. Talley, District Engineer at Louisville. Lt. Col. Geo. N. Kibler is officer in charge. F. G. Dyer is project engineer, assisted by Geo. W. Kinsloe.

For the contractor, W. L. Johnson Construction Co., Hicksville and Columbus, O., Fred I. Rowe, president, is running the job, along with the following superintendents: Lee M. Deardorf, Douglas H. Criswell and P. S. Scott, in the field; R. M. Tangeman, plant; Ralph Beerbower, office; Robert Kreig, grading and Richard Alkire, structures. Central States Const. Co., Logan, O., is subcontractor on production of aggregates.

# *Patterson Field...* SUBGRADING



## *1—Plenty of Compaction...*

**Three-drum sheepsfoot roller makes final run on subgrade compaction to 90 percent maximum density while Cleveland form-grader cuts trench for next set of forms.**

## *2—Followed by full-width leveling...*

**Special 25-ft. blade on Caterpillar motor grader for full-width leveling is steadied by lines from tow tractor. Guide rollers bearing on finished slab keep blade in proper position.**





### 3—Requires some finished grading...

Equipped with guide rollers, Caterpillar motor grader gives final touch to heavy subgrading.

### 4—Topped by finegrading and rolling...

Final subgrade finish is by Huber rollers, and Cleveland Trail grader, with some hand work under projecting dowels, all checked by Cleveland scratch template in background.



## Patterson Field... FORM-SETTING



### 1—Forms are stripped . . .

Pipe-boom-equipped Huber maintainer pulls special Heltzel triangular forms loose from dowels. Forms, with one 21-in. and one 25-in. face, can be used for both taxiway and runway. Pin and dowel holes are available for either position.

### 2—And loaded on to wagons . . .

Pipe-frame rubber-tired wagon transports 12-ft. form sections to new location. Job requires 3,900 lin. ft. of forms despite dual use on both runway and taxiway made possible by triangular section.



## 3—To be set by crane . . .

Triangular forms in 12-ft. sections are too heavy for hand handling but are a snap for this Allis-Chalmers crane. Broad bases of forms carry heavy finishing equipment with ease.





## 4—Jockeyed into position with bars...

A shove here and a push there with crowbars shifts form sections into final position against chalk lines. Note 4-in. holes in form face, 1½ in. larger than dowels. More about this item later.



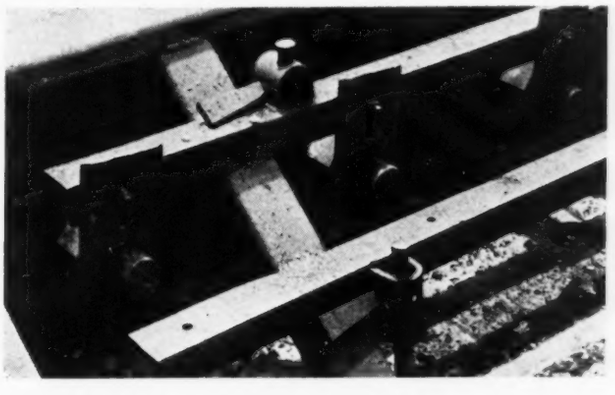
## 5—Held fast with air-driven pins...

No time to waste driving form pins by hand, so they are socked home with air hammers powered by handy LeRoi Tractair traveling compressor.



## 6—Ready for dowels . . .

Lead-transfer dowels are 2½-in. bars 2 ft. long, each weighing 33 lb. and set 18 in. c. to c. The 141,000 dowels required for job weigh 2,327 tons.



## 7—Held by special sleeves . . .

Plate bracket, punched to hold outer end of dowel, is welded to sleeve that fits into hole in form face, flush with inside face, filling hole to hold dowel snugly at midpoint. Assembly, bolted to form angle, is removed, sleeve and all, before forms are stripped, thus leaving space around dowel that permits forms to slide away without binding.



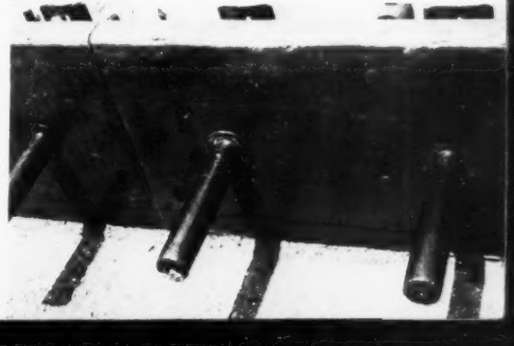
## 8—Acting as flush bearings . . .

Inside end of sleeves can be seen here, flush with inside face of forms. Dowels fit snugly within sleeves, which are removed from outside before forms are stripped.



## 9—Ready for concrete . . .

Greased dowels are in place, ready for concrete. This close-up view indicates annular space left around dowels when sleeves are pulled from outside, allowing ample play in forms for stripping.

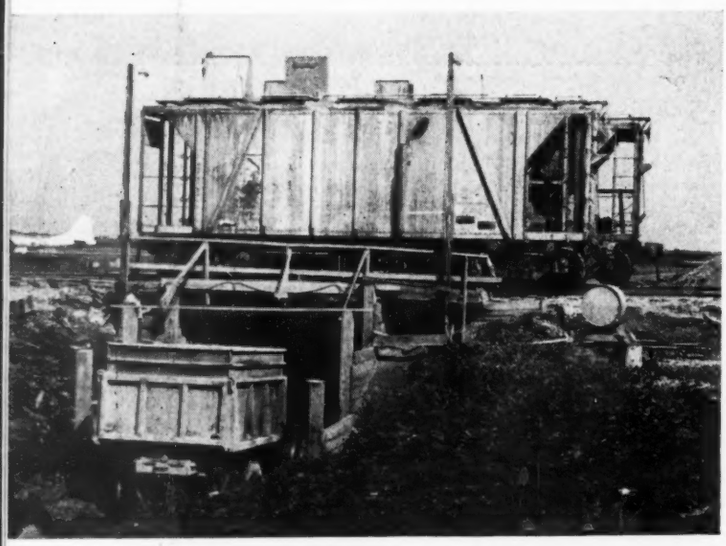


# *Patterson Field...* CONCRETE MATERIALS PREPARATION



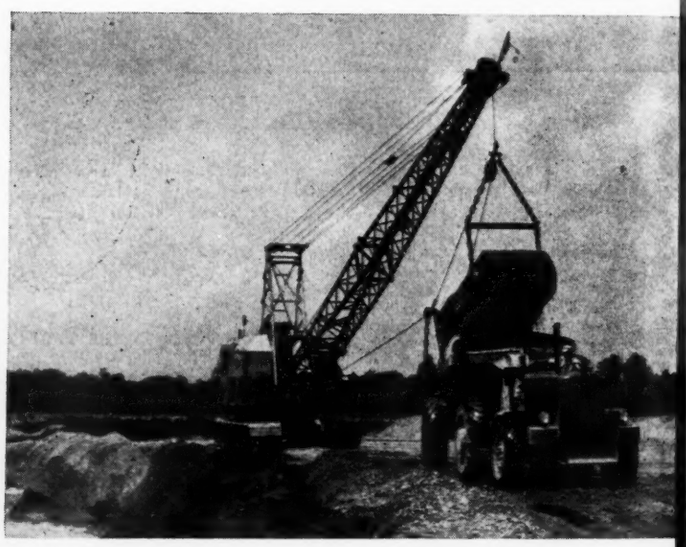
## *1—Reinforcing from landing mats . . .*

Surplus wire mesh landing mats that otherwise would never carry a plane make excellent slab reinforcing when unrolled and straightened by this San Angelo power roll for cutting into flat strips. See those two rollers upon which wire roll rests? Beats supporting wire roll on an axle, says contractor.



## *2—Bulk cement direct from cars . . .*

Underpasses under cement storage trucks allow dump trucks to load cement right from car hoppers. Tractor and snatch line shift cars.



## *3—Aggregate from a nearby pit . . .*

An accommodating glacier parked plenty of gravel under site so this pit could be opened up near field limits. Lima dragline loads Heil wagons as first step in aggregate production.

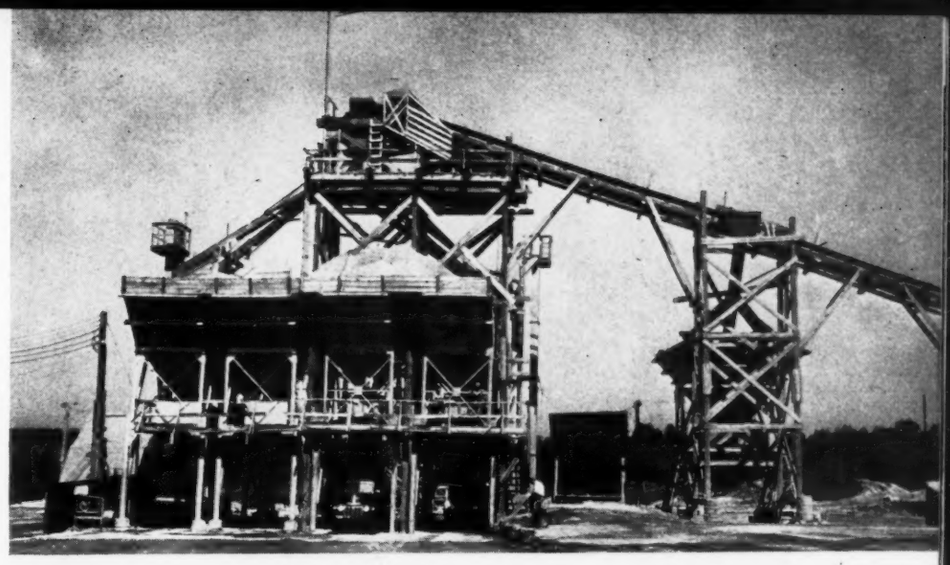


## *4—Graded in this screening plant . . .*

From water-filled pit in background, aggregates pass through this screening and washing plant to be separated into sand and ¾-, 1½-, and 3-in. gravel. A 400-ft. tunnel under stockpiles collects various sizes for transporting over 36-in. belt to batching plant.

## 5—Proportioned in this dual batching plant . . .

Here is something neat in batching plants, really two plants set side by side. Double-batch trucks can get a full proportioned load in three stops: one stop in either of the two left lanes loads two sizes of stone simultaneously in both truck batch compartments; second stop in far end of either of right-hand lanes loads cement; a short move and third stop loads sand and remaining size of stone in both batch boxes at same time.



# Patterson Field... MIXING AND PLACING

## 1—Some concrete is mixed at central plant . . .

Two Koehring 34-E pavers act as central mixing plant for part of concrete, and third paver has been recently installed here.







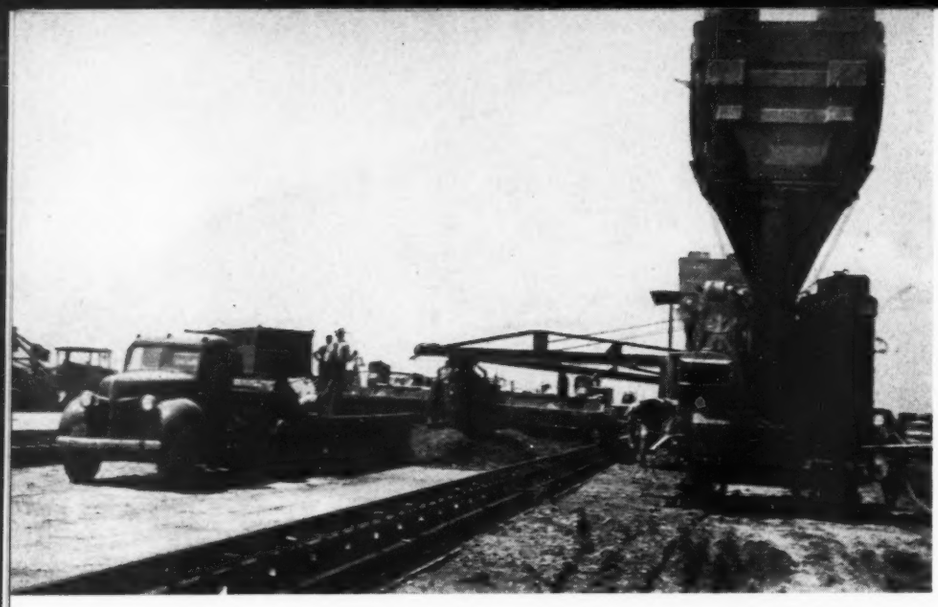
## 2—For hauling in dump trucks . . .

Trucks from central plant run over finished strips and dump into first course from traveling ramp consisting of low-bed trailer. Angle stop in foreground is for trucks dumping close to finished slab.

## 3—And some concrete is mixed at forms . . .

Two Koehring double-drum 34-E pavers at the forms (below), take care of remaining concrete. Mixer at right is pouring into first course (17 in.) while far mixer is topping out slab above reinforcing mesh. Truck is hauling low-bed trailer used as moving ramp for wet-mix trucks.



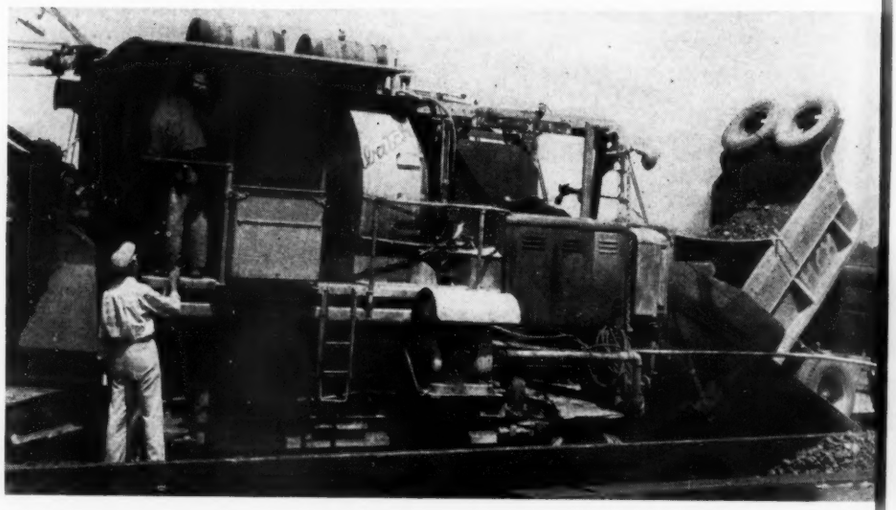


## 4—As lead mixer works on first course . . .

Wet-mix trucks dump against form and finished slab, while first mixer at forms fills in the center of first course.

## 5—Air-entraining admixture added at mixers . . .

Two barrels on top of each paver hold solution of Darex AEA compound, added to mix through meter and pump seen at right end of mixing drum at rate of 1½ oz. per sack of cement.





# Patterson Field . . . SLAB FINISHING

## 1—Spreader starts finishing parade . . .

Deep layer of harsh concrete is distributed and spread into even thickness by Blaw-Knox spreader and screed (below). Rugged triangular forms take this punishment in stride.



## 2—Followed by vibration . . .

Six Viber electric vibrators mounted on rear of Blaw-Knox spreader make the harsh mixture lie down and be good in a nicely-puddled layer.



**Here's What it Takes to Pave Patterson Field**

### GRADING AND DRAINAGE

1 Koehring 1½-yd. shovel-crane-dragline
2 Koehring ¾-yd. shovel-crane-draglines
1 Northwest ¾-yd. shovel-crane-dragline
3 Koehring 10-yd. Wheelers
3 Tournapulls with LPE scrapers
3 Caterpillar DW10's with LaPlant-Choate 17-yd. scraper
5 LeTourneau scrapers 14 to 19 yd.
9 Caterpillar D8 tractors (3 with bulldozers)
2 Caterpillar D7 tractors
1 Caterpillar D4 tractor-bulldozer
1 Caterpillar 20 tractor
1 Parsons 25 trencher
1 Buckeye 12 trencher
1 Cleveland Babydigger trencher
1 Wellpoint 8-in. pump, headers, points

### SUBGRADING AND FORMS

7 Sheepsfoot rollers, 1 to 3 drums
3 Caterpillar 12 motor graders
1 Caterpillar 10 motor grader
2 Huber maintainers
2 Huber 10-ton 3-wheel rollers
1 Buffalo-Springfield 7½-ton 3-wheel roller

1 Huber 5-ton 3-wheel roller
2 Cleveland form graders
1 Cleveland subgrader
1 Cleveland trailgrader
1 Cleveland scratch template
3,900 l.f. Heltzel special 21-25-in. forms
10 Wagons for hauling forms, dowels, mesh
2 LeRoi Tractair 105-ft. compressors
6 1,200-gal. water trucks with spraybars
1 Allis-Chalmers Farm tractor

### AGGREGATE PRODUCTION AND BATCHING

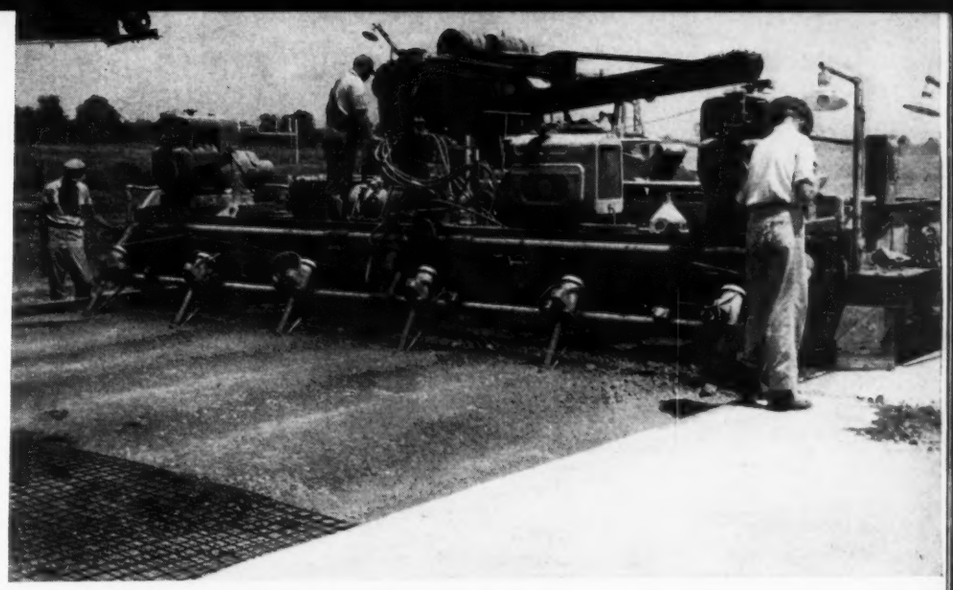
2 Blaw-Knox 150-ton 2-comp. weighing hoppers
2 Heltzel 150-ton 2-comp. weighing hoppers
3 Heltzel 400-bbl. bulk cement bins, dual weighing hoppers
1 36-in. belt conveyor 550 ft.
2 12-ft. compressors on cement bins
28 Batch trucks, dual compartments
4 Dump trucks, tight bodies for bulk cement
Subcontractor: 1 Lima 2½-yd. dragline
6 Heil self-powered wagons
1 complete screening-washing plant

### CONCRETE MIXING AND FINISHING

5 Koehring Twinbatch 34-E pavers
1 Blaw-Knox spreader with 6 Viber electric vibrators
2 Jaeger-Lakewood finishers with Jackson tube vibrators
1 Heltzel Flexplane joint machine
1 self-propelled sprayer for curing compound
4 Master gas-driven vibrators
1 Smith 11S mixer
3 2-yd. transit mixers
1 Aeroil tar kettle
1 White tar kettle

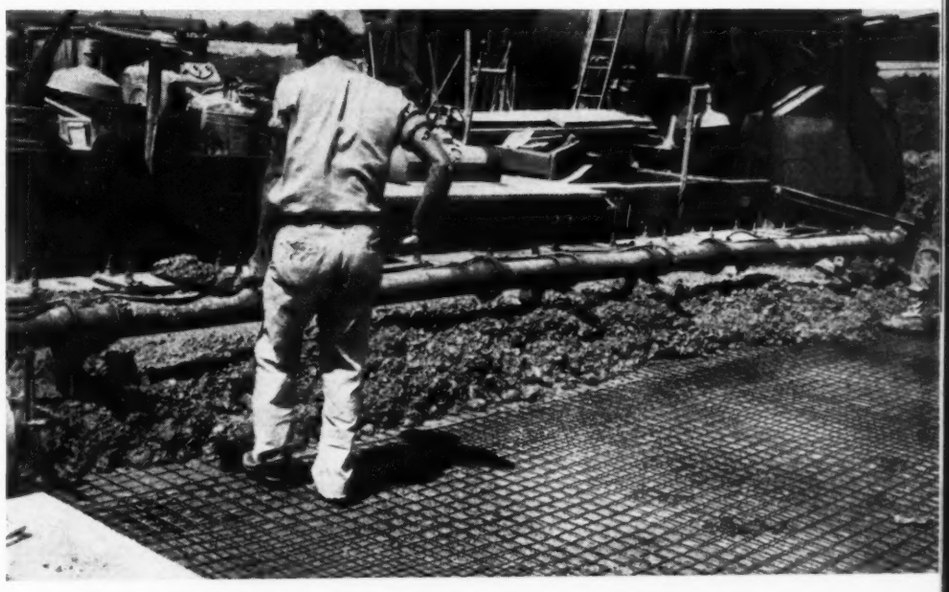
### MISCELLANEOUS

1 Ingersoll-Rand 210 compressor
10 Jaeger pumps 1½ to 4 in.
2 Gorman-Rupp 4-in. pumps
2 CMC 4-in. pumps
1 San Angelo roll for straightening mesh
3 Portable welders
2 Shop arc welders
4 Flatbed trucks
2 800-gal. fuel trucks
10,000 gal. gasoline storage
10,000 gal. diesel fuel storage



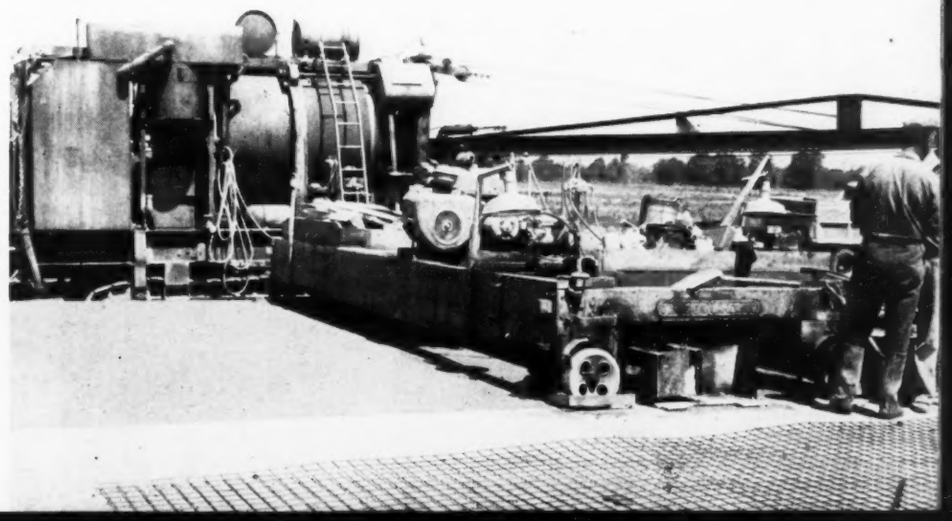
## 3—With reinforcing close behind . . .

Vibrators leave first-course surface ready for wire mesh, which is kept close to spreader. Job is compact, with remarkably short distance between first pouring and final finishing operations.



## 4—Here comes the top course . . .

Second paver at forms takes care of top 4 in. above reinforcing mat. As concrete is deposited, Jaeger finisher mounting Jackson vibrating tube at front shakes mixture into workable mass.



## 5—Smoothed off with second finisher . . .

Following close behind first Jaeger finisher with vibrating tube is another Jaeger rig, equipped with similar tube as a spare, not used regularly, which gives final screeding to top of slab.



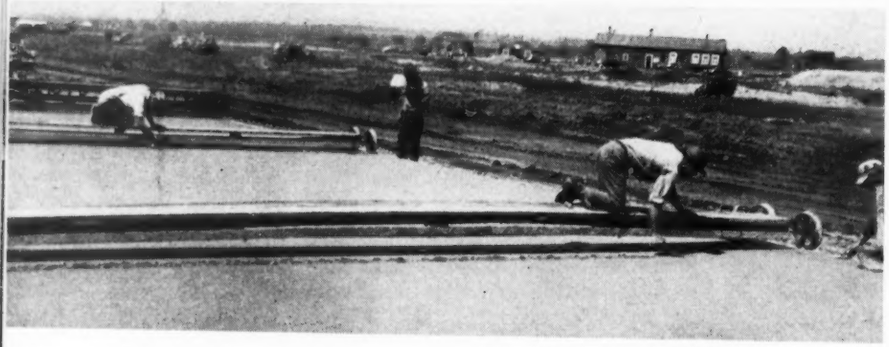
## 6—Ripped open by joint machine . . .

Contraction joints of 5-in. depth are made up of 3-in. strips of molded rubber-asphalt, set every 28 ft. beneath 2-in open joint (later filled by pouring) by Heltzel Flex-Plane joint machine.



## 7—Smoothed over by hand floating . . .

Final finishing of slab is by hand screeds followed by burlap drag.



## 8—Joints are opened up . . .

Finishers working from traveling bridges open up joints for pouring top (2-in.) joint filler of rubberized sealer.



## 9—Bedded down under curing compound . . .

Final step in finishing is spraying Truscon's Tru-cure curing compound with this self-propelled rig that carries cross-traveling hood for protecting spray against wind. Job is done, bring on the bombers!



## 10—Turntable of sheet piling

When end of strip is reached, finishing equipment is run off forms on to this transporter sled made up of steel sheetpile sections and hauled by a tractor, turned around, and unloaded back on to guide forms for another run.

## *Cited for Service*



**RODMAN B. DOREMUS**

OUTSTANDING among those hustling young fellows who spark construction activities throughout the world is Rodman B. Doremus, executive vice-president of F. H. McGraw & Co., Hartford, Conn., and New York City, with branch offices in Pittsburgh, St. Louis, Chicago, Gary, Ind., Middletown, O., South America and the East Indies. Of the $300,000,000 contracts the McGraw Co. has completed since it was founded in 1929, Doremus has been in responsible charge for more than one-third of the total. He is recognized in construction circles not only for his administrative ability but also for his engineering skill.

Born in Newark, N. J., Nov. 4, 1899, Rod started his career as a riveter upon graduating from nearby Hackensack High School in 1917. In 1918 he received an appointment to West Point, but turned it down to join the Army as a private. He ended up in the S.A.T.C. at Norwich University, and switched to Stevens Institute after the war. In 1921 he left school to work for John Wherele & Son, Hackensack contractor, as a rigger. Turning to real estate as a mortgage property inspector, he entered business for himself in 1927, but a year later went out with the real estate crash. Meanwhile, he pursued his technical education by correspondence and extension courses and by 1940 considered he had received the equivalent of a formal education.

Doremus started his first real contracting experience in 1928 as assistant chief engineer for Jos. Kinzley & Co. of Hackensack, but four years later the firm folded up. Rod worked as a stone mason's helper and concrete laborer for a year, and then fortunately joined F. H. McGraw & Co. in 1933 as a timekeeper on the job of converting the New York Club into an office building for Schenley Distillers Corp. Here his abilities were recognized, for he was rapidly promoted to assistant general superintendent before the job was finished. He then became superintendent on numerous projects in New York and Pittsburgh for the next seven years.

In 1941 he went to Bermuda to represent McGraw in building the huge naval air base there, and while on this job was appointed vice-president of the company. Bermuda was one of the outstanding off-shore installations started with the defense program, finished during the war. Doremus had to contend with all the vicissitudes of supply, labor, fast schedules and numerous revisions, but he turned out a most credible performance that later won him the Navy Civilian Award for Meritorious Service. He also had a part in McGraw's other two big war contracts, the Jayhawk Ordnance Plant and the Reynolds Alloys Co. rolling mill at Sheffield, Ala.

At the end of the war Doremus was named executive vice-president, and as such handles all administrative functions of the fast-expanding McGraw company. Keenly interested in construction procedure, he keeps in close touch with job operations.

Construction progresses under the leadership of men like Rodman B. Doremus. And the construction world is going to hear more of this fellow in the future.



NEW ALUMINUM SURFACE of preformed panels is applied to 60,000-sq. ft. dome of Mormon Tabernacle in Salt Lake City. Oval-shaped structure is 250 ft. long and 150 ft. wide. Dome rises 85 ft. above walls.

# Preformed Aluminum Panels R

OLD PRESSED METAL SHINGLE roof covering, at right, is replaced by curved aluminum panels, at left, installed from movable scaffold.



CURVED ALUMINUM SHEETS preformed into panels and interlocked with extruded channel-shaped aluminum battens and caps form a new lightweight roof on the dome of the 84-year old Mormon Tabernacle in Salt Lake City, Utah. The impressive, oval-shaped structure, located in the heart of the city's 10-acre, Temple Square section, recently underwent a major renovation utilizing almost 60,000 sq. ft. of preformed aluminum sheet.

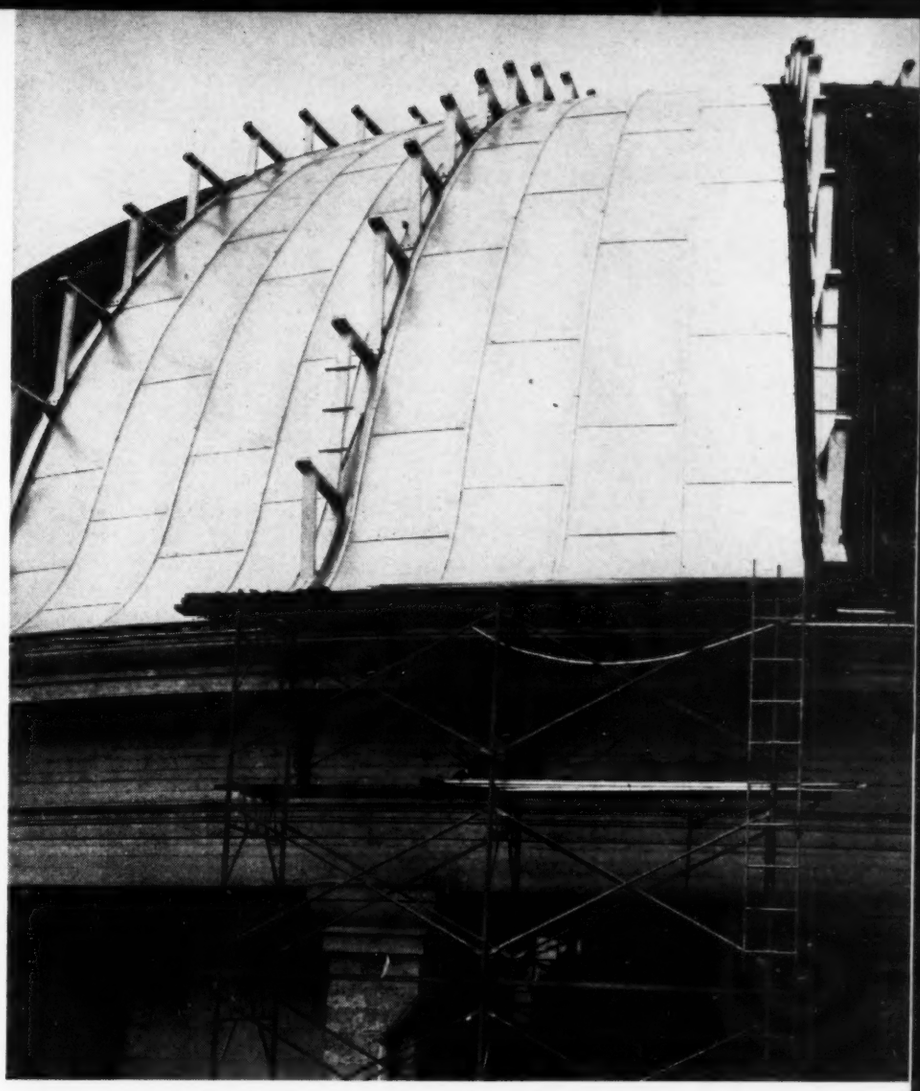
Contractor for the project was the Overly Manufacturing Co., Greensburg, Pa., and its representative supervising the job was

# els Roof Mormon Tabernacle

the Ashton Heating & Air Conditioning Co. of Salt Lake City. The Overly company completed a similar aluminum roofing operation on the 100-ft. dome of the Cincinnati Union Terminal early last year. (See CONSTRUCTION METHODS, May, 1946, p. 86) A patented rib-type construction, known to the building trade as Goodwin batten, was used throughout.

More than 35,000 lb. of metal was required for this largest single metal roofing project undertaken since the war. Begun during Easter week this year, final sections of the custom-fabricated 0.032-in. aluminum roofing were installed July 1, at a time when the Mormons were celebrating the centenary of their historic settlement of Salt Lake City, when Brigham Young led his followers to the then-isolated area on July 24, 1847, and said, "This is the Place."

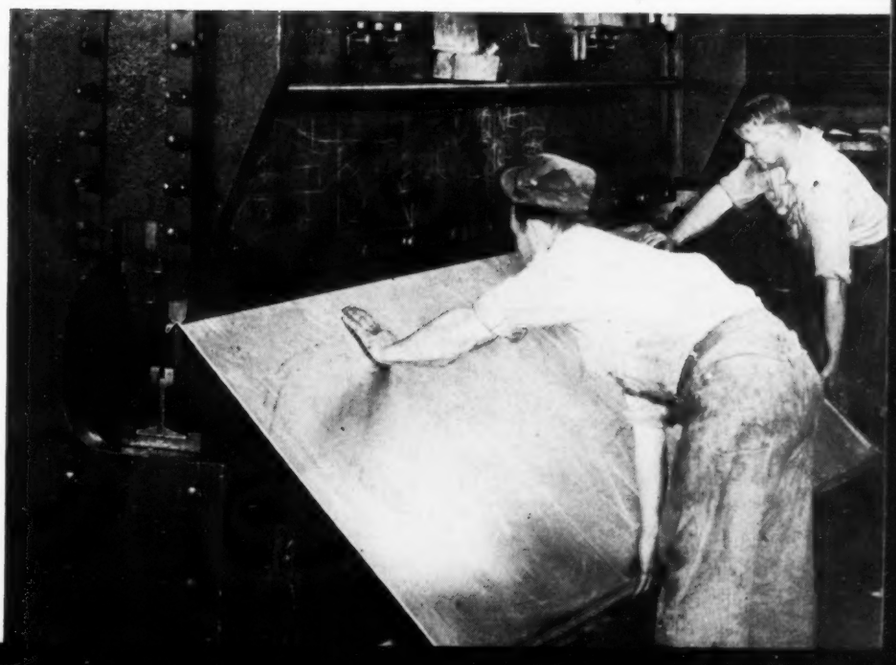
Construction of the tabernacle dates from Civil War days. Measuring 250 ft. on its long axis, 150 ft. on its short axis and rising 85 ft. above wood and masonry walls, the building's huge, umbrella-like dome is entirely unsupported by interior columns. Its 9-ft.-deep bridgework of timbers, latticed and joined by wood pegs, rests on 44 cut sandstone pillars. Transportation problems and the lack of available steel and iron precluded use of these materials in the 1860's.

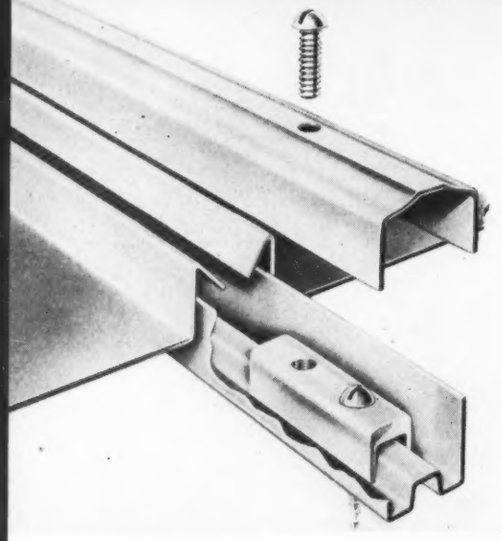


**SPECIAL SCAFFOLDING** was designed by contractor to provide staging from which to apply curved aluminum sheets to wood base of dome, after removal of old pressed metal shingles.

The Mormon Tabernacle seating 8,000, started in 1864 and completed in 1867, was built with the material at hand. Stone was used for the buttresses and native timber for the trusses. The roof is supported by lattice wood trusses, spaced 12 ft. 4 in. on centers and having a clear span of 150 ft. They are 9 ft. deep and are made up of 2¼x12-in. timbers. The timbers are held in place with 1¾-in. dia. hardwood pegs, the ends of which are split, glued, and wedged with hardwood pegs. The members were shaped by steaming and bending to conform to the roof

**PREFORMING** of aluminum panels is done at shops of roofing contractor so accurately that no bending or forming is necessary at site of tabernacle.





INTERLOCK OF PREFORMED ROOFING sheets is provided by channel-shaped battens of extruded aluminum and caps. Aluminum screws 1¾ in. long anchor battens to wood deck of roof.

curve, and cracked timbers were wrapped with rawhide. Stresses in each truss are transferred directly to the stone piers, eliminating the need of a metal tierod at the spring line.

The shiny aluminum roof is the building's third. It replaces an ornamental pressed-metal shingle roof, successor to the original wood shingle surface installed in 1867. Lighter by many pounds than its two predecessors, the roof of Alcoa 3S-½H aluminum alloy sheet and extrusions is expected to prolong life and will appreciably reduce load stress on the aged wood framing.

Each of the 188 aluminum roofing sections (128 radial, 60 straight) was accurately preformed and curved at Overly's Greenburg, Pa., plant from measurements taken late in 1946 by company engineers who collaborated with University of Utah engineering students. So precise were these plans that no additional bending or forming of the custom-tailored sheet and extrusions was required at the site.

The convex roof surface, which resembles a gigantic inverted bowl, was first prepared for re-roofing by removal of the combination metal shingle and tar-paper layer to the bare wood sheathing. The whole area was subsequently covered with a blanket of 30-lb. tarred felt, attached by aluminum nails. Erection of the tapered aluminum panels and extruded channel sections was simplified by an Overly-designed scaffolding rigged from the dome's crest, which could be shifted both vertically and laterally as work progressed. Aluminum panels were placed in a vertical arrangement, with upper sections joining and interlocking the ones beneath.

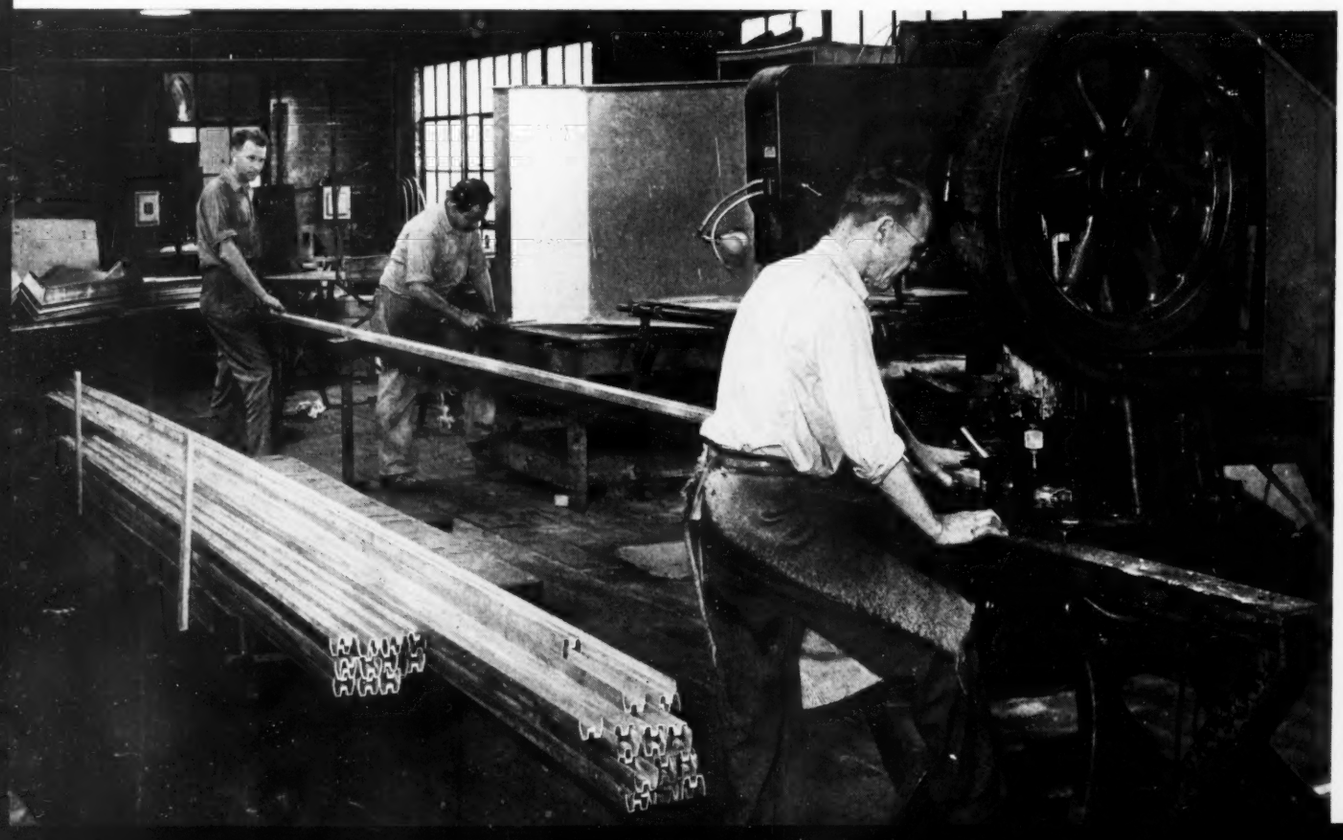
### Battens Interlock Sheets

More than 20,000 lin. ft. of 0.051-in. thick extruded Alcoa aluminum formed battens and caps in which the sheet was interlocked. Since an all-wood roof base was involved, battens were fastened with 10-gage aluminum wood screws, 1¾ in. long, applied directly to the white pine sheathing of the tabernacle. Incidentally, workmen reported that the original wood decking was still in excellent condition. Design of the extruded aluminum battens formed a weathertight sleeve, insuring maximum protection against leakage.

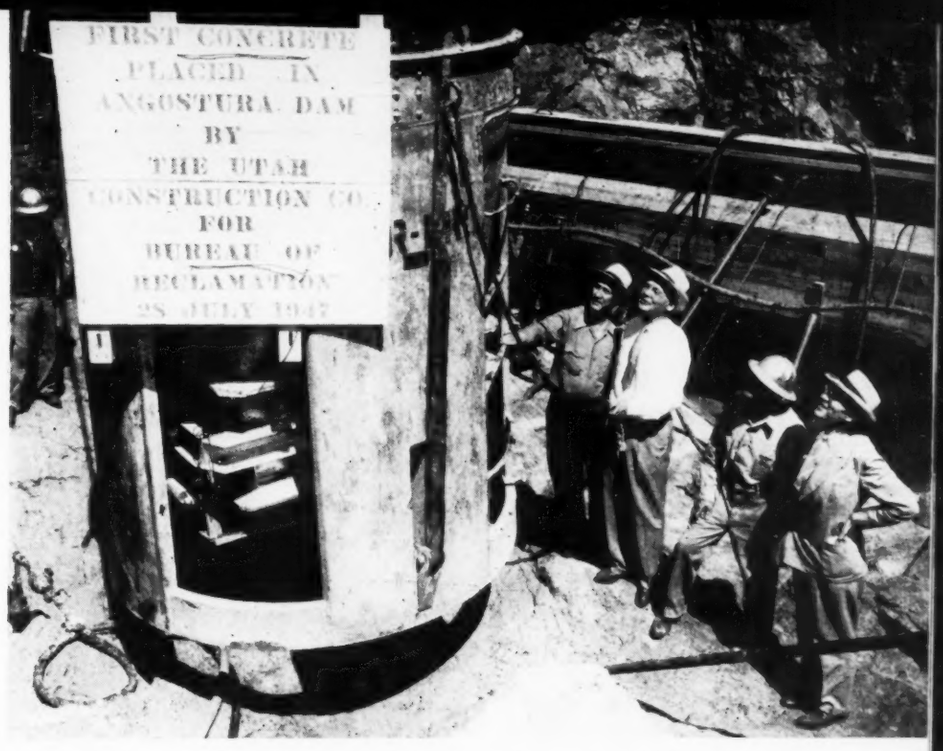
According to an Aluminum Company of America spokesman, the ramified network of sliding, interlocking joints is so installed that expansion and contraction of the aluminum roof is adequately compensated for during extremes in temperature, thereby eliminating dangers of buckling from unusual stresses.



BATTENS OF EXTRUDED ALUMINUM and caps for interlocking curved roofing panels are drilled and tapped prior to erection.

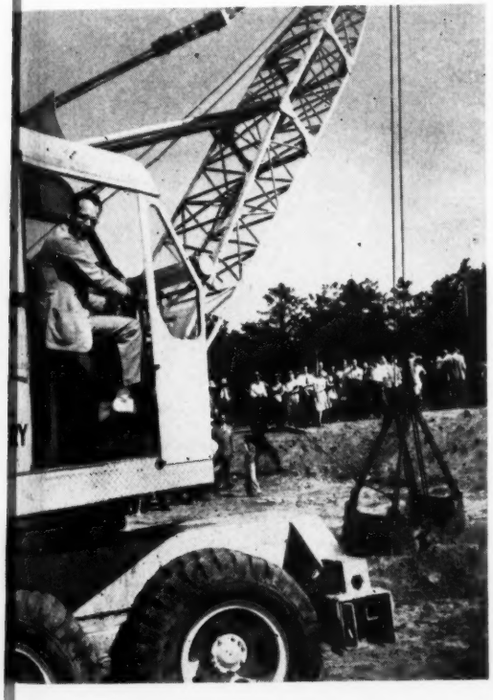




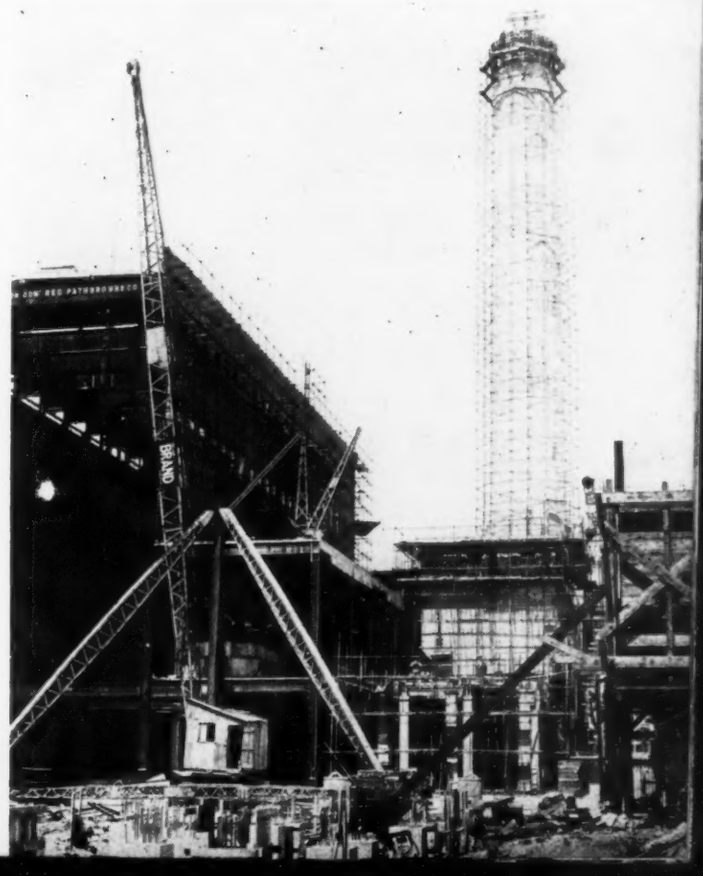

FIRST CONCRETE for Angostura Dam on Cheyenne River in South Dakota's Black Hills reaches forms in 6-yd. Gar-Bro bucket via high-line cableway. Dam, 2,000-ft. earth fill with concrete spillway section, is being built for U. S. Bureau of Reclamation as part of Missouri Basin program by Utah Construction Co. Greeting first bucket are (left to right): H. V. HUBBELL, U.S.B.R. project engineer; C. A. WILSON, representing nearby Hot Springs, S. D., Chamber of Commerce; BEN ARP, Utah's project manager, and LESLIE JENSEN, ex-governor of South Dakota.





←
FIRST PEACETIME ATOMIC PILE will be constructed for $10,000,000 at Brookhaven, L. I., N. Y. At controls of steam shovel as ground is broken is DR. LYLE B. BORST, designer and director of pile, which will be housed in 120x100-ft. brick building, with two wings containing laboratories. H. K. Ferguson Co., of Cleveland, New York and Houston, is contractor.

NEW POWER STATION (below) at Kingston-on-Thames is half completed. One of four in $100,000,000 program for London area, it will produce 120,000 kw. At right is nearly finished 250-ft. chimney of 21½-ft. base diameter. British Combine Photo

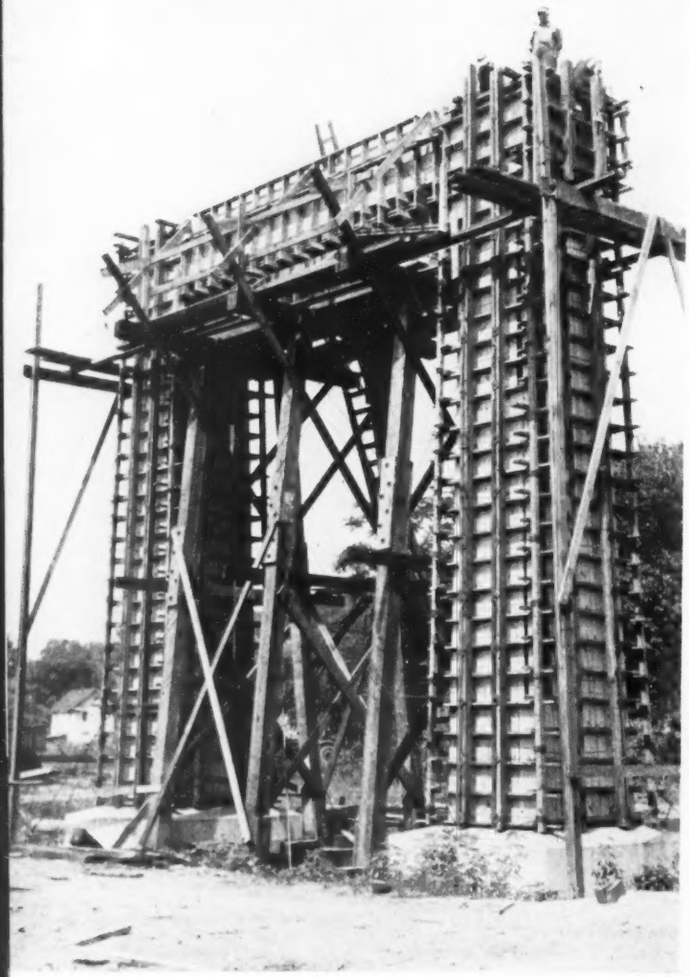


FROM KOHTLA-JARVE TO LENINGRAD, gas will flow through 139-mi. pipeline (below), now under construction in U.S.S.R.



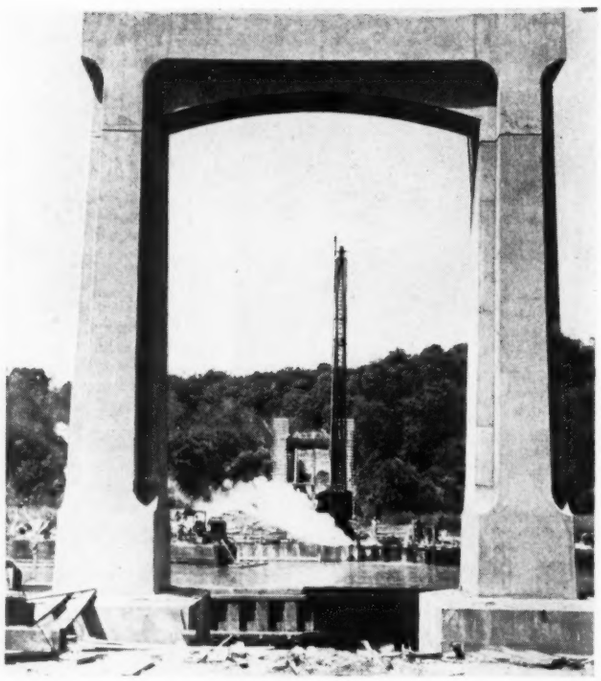
# Roslyn Viaduct Forms...

## Job-Made Plywood Panels Simplify Complicated Formwork



*Neat, Clean Formwork...*

Clever design and careful workmanship insure easy erection of shop-fabricated forms for viaduct piers at Roslyn, N. Y. Twenty-one panels form pier legs and cap.



*For Neat Clean Piers...*

Excellent concrete job is result of tight, strong, plywood-faced forms and thorough vibration of mix. Only concrete finishing work on piers is pointing-up of form-tie holes.

WHAT MIGHT HAVE BEEN a formbuilder's nightmare has been turned into a sweet dream by clever design and pre-assembly of forms on Senior & Palmer's $546,000 substructure work for a new viaduct on North Hempstead Turnpike at Roslyn, Long Island, N. Y. In a well-equipped job shop, the New York City contractor builds forms for concrete piers in panels as large as 8x45 ft., then slaps them in place with a crane to assemble complete pier columns and cap with a total of only 21 pieces of formwork.

The new viaduct, 2,144 ft. long and with 14 intermediate piers, will realign the present narrow winding highway and carry it over a shallow valley and the inner end of Hempstead Harbor. Spans vary from 99 ft. to a 226-ft. harbor crossing. All piers are on land, with twin tapered rectangular concrete shafts or legs 29 ft. apart, rising as high as 45 ft. over 3-ft. pedestals on a common 6-ft. slab forming the pier base. Piers are founded on steel pipe or



ALL FORMS are made in job form shop equipped with 20-in. Northfield bandsaw, 16-in. Beach table saw and 12-in. Skilsaw shown here mounted in simple wood guide frame that transforms it into efficient bench cut-off saw.



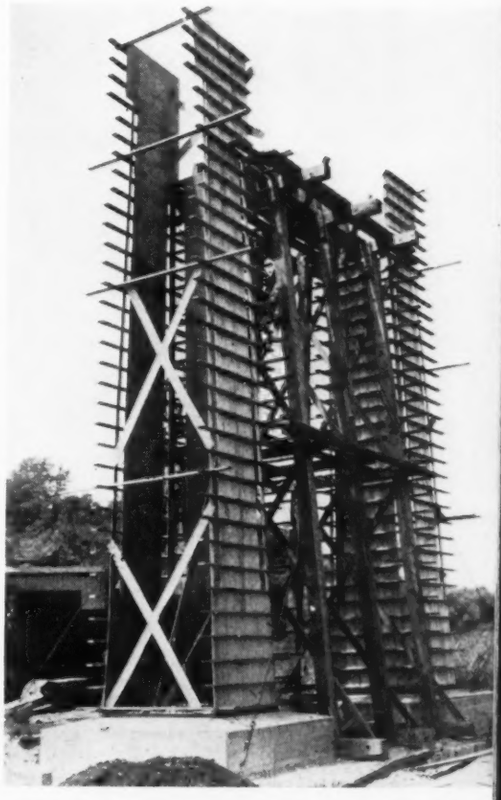
LONG BOXES for forming pier shafts' corner reveals are nailed and faced with plywood in extension to form shop. Note stacked blocks and pre-assembled ribs for box frames.

timber piles that extend 6 in. into the base slab (see following article). At the top, the shafts are tied by a concrete cap and arched beam. The piers will support a 65-ft. wide steel and concrete deck structure, for which the contract has not yet been let, that will cantilever 18 ft. outside the pier shafts.

Formwork is complicated by different dimensions and batters on each pier, and by varied sizes of deep reveals at each shaft corner with consequent different radii of bullnose forms for transition sections at their top and bottom. In order that forms might be used more than once without complete rebuilding, the contractor received permission to revise the batters slightly, and one set of forms now serves two piers.

Four face panels and four boxes for the reveals make each pier leg. Two of the panels extend upward to form part of the sides of the cap. Cap and beam formwork is completed with only five more pieces—two end forms, two side panels and one combination bottom form and arch centering. Thus only 21 sections are erected for each pier above the pedestals.

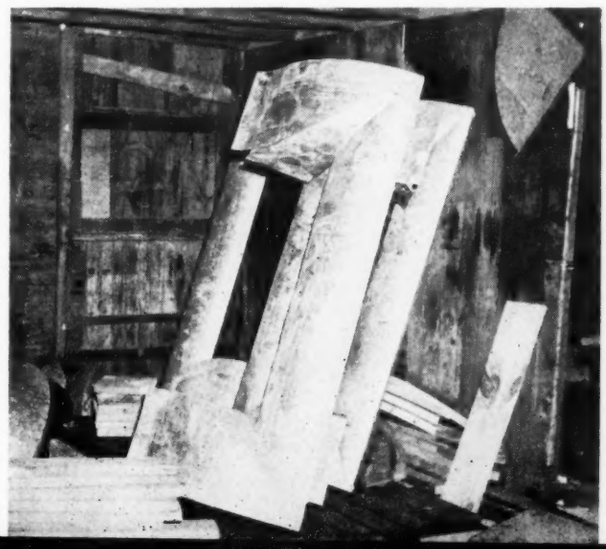
Senior & Palmer set up a job carpenter shop where all forms are made. Pier leg panels are ¼-in. plywood on 1-in. vertical sheathing with attached horizontal studs on 15-in. centers. Studs extend beyond the panels and are offset slightly so that, when erected,



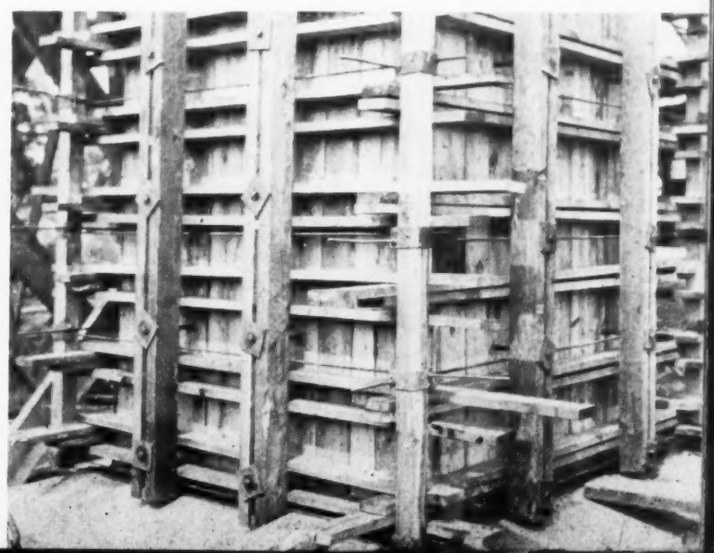
PIER SHAFT PANELS, made in shop, extend in one piece from pedestal to top of high pier cap. Here forms are temporarily braced, awaiting erection of other forms and setting of reinforcing steel.



CURVED, METAL-FACED FORMS (below) for reveal and cap ends wait in shop for attachment to form panels. Exterior corners of these complicated shapes will be chamfered with U. S. Rubber Co. extruded rubber skewback fastened with finishing nails that pull through without damage to re-usable chamfer strip.



AT BASE OF TALL COLUMN (below), form has double 3x6-in. studs instead of short piers' single ones. Corner posts, clamp rods, extended overlapping studs, and vertical double wales are typical for all piers on viaduct project.



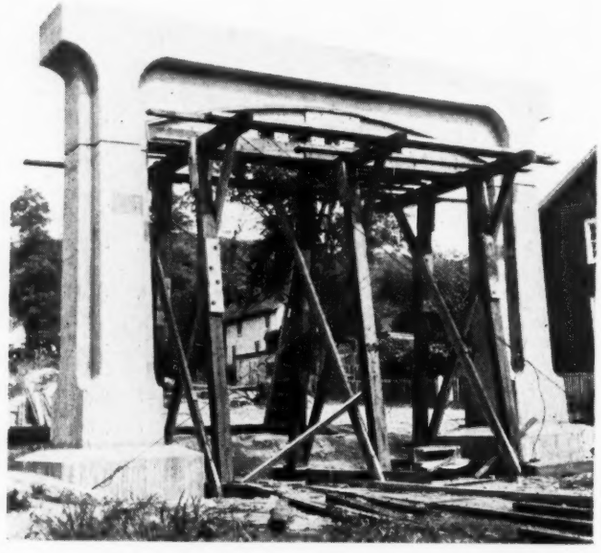



CONCRETE FOR PIER LEGS is moved to forms in Insley bucket on 65-ft. boom of 15-ton Manitowoc crane as Mall vibrator is wheeled to position on pier top.

studs of adjacent panels overlap. This enables the panels to be held temporarily by spikes through the lap, and the intersections serve as seats for 4x4-in. corner posts or wales running the length of the forms. These posts are tied together around the exterior of the shaft by ½-in. Richmond Lagstuds, as column clamps, through iron collars on a 2- to 3-ft. spacing along the posts. In addition, the form panels are held by two doubled 3x6-in. vertical wales on each face, tied through the shaft by ¾-in. Tyscrus on 2½-ft. vertical centers.

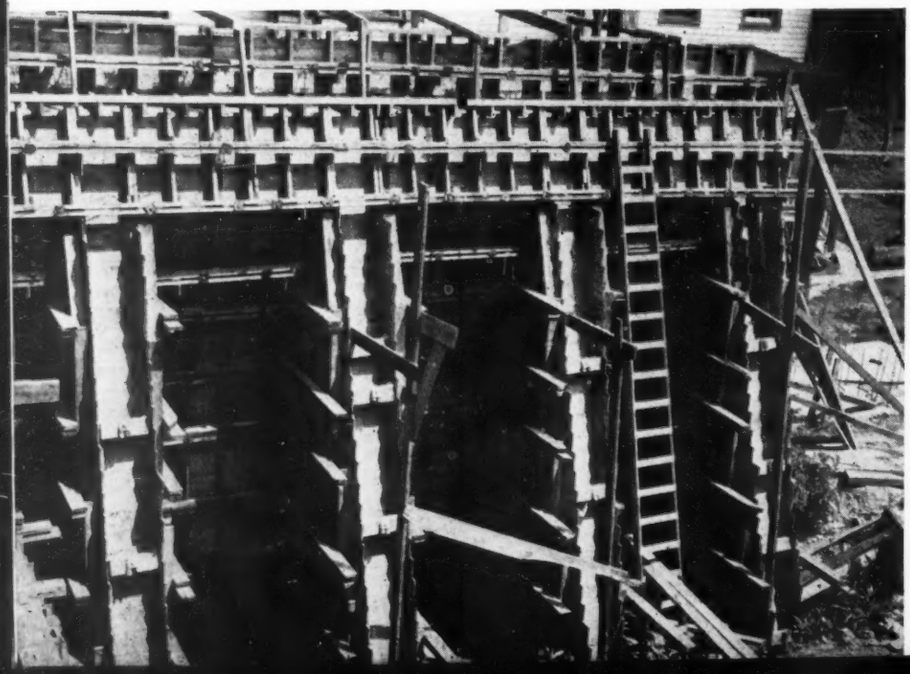
Boxes for reveals are frames of 2x4's faced on two sides with ⅝-in. plywood. Side forms for cap and beam are similar to the column forms except that sheathing and wales are horizontal, studs vertical. One line of ½-in. Tyscrus on 2½-ft. centers runs through the cap; another set holds the beam forms. A plywood-topped prefabricated arch centering, built up of bolted 3x12's, forms the beam bottom.

The forms, which weigh as much as a ton, are handled by crane. First a bolted timber falsework of three A-frames with 12x12 posts, sills and caps, cross-braced by 3x12's and guyed with ½-in. cables, is erected on the pier slab between pedestals. Inner



FIRST TO GO UP, last to come down, is timber falsework of 12x12's cross-braced and guyed securely. Prefabricated arch centering and bottom form rest on top of A-frame bents.

FORMS VARY from those for this complicated counterfort abutment wing wall (below), to simple panels for pier pedestals. Slabs for most of piers were poured against sheeting of excavated pits.



form panels for the shaft are placed on the pedestal and braced to the falsework, then two side panels for each leg are rested against the inner forms and the overlapping studs are spiked together. The free edges of the side panels are temporarily cross-braced while reveal boxes and reinforcing is set, after which the bracing is replaced with the fourth or closing form panel.

Above the pedestals, each pier is made in two pours after all forms are placed to tie the entire structure together. The first pour carries each leg up simultaneously

to 1½ ft. below arch springline; the second tops out legs and cap. Transit-mixed 1:2:3½ concrete, with one bag of natural cement to each six of Portland, is dumped in the forms by crane and bucket. For the shafts, the bucket discharges into funnels and elephant trunks that lead to pour level. A Mall vibrator mounted on top of the pier consolidates the poured concrete through a 35-ft. drive shaft to the vibrating head.

All forms are left in place until after the second pour, then panels are stripped after three to five days and centering removed after eight. The ease with which forms are erected enables the contractor to make two pours a week; usually one shaft pour and one cap pour on different piers.

For Senior & Palmer, Inc., Teddy Gullman is superintendent and John P. Barnes is job engineer. Howard E. Pierson is resident for the state.

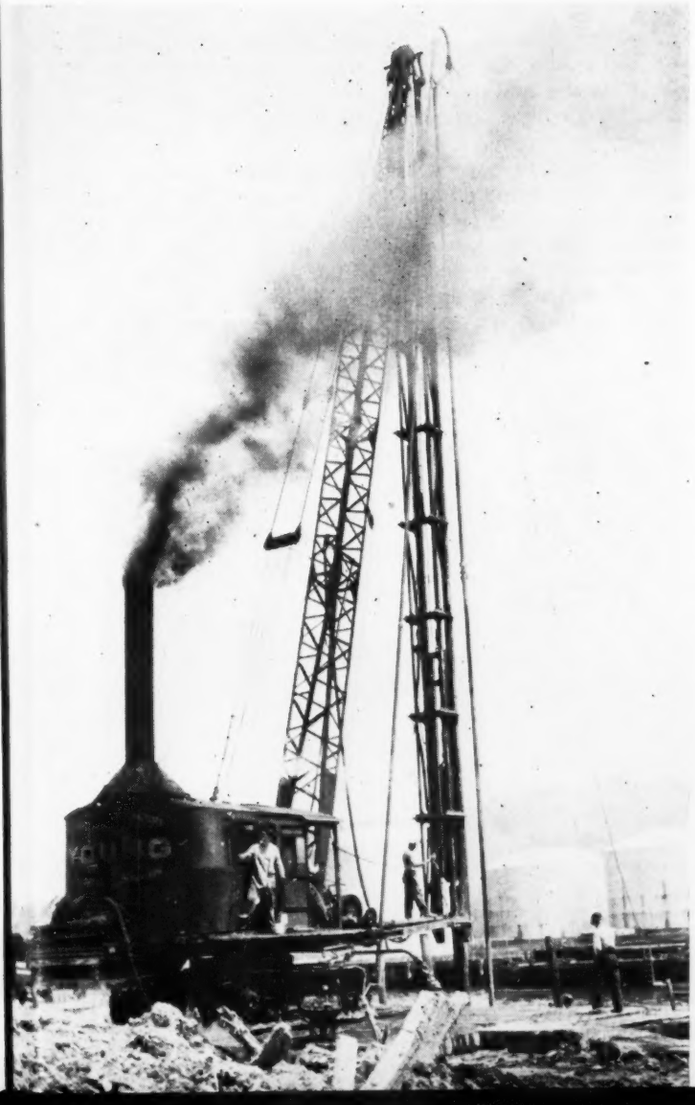
# *Roslyn Viaduct Piledriving...*

## Pre-Jetting for Long Piles Keeps Driving on Fast Schedule

PACING THE CONCRETE WORK on New York State's Roslyn viaduct project is the foundation piledriving, which Senior & Palmer Inc., the general contractor, sublet to Young Foundation Corp., New York City. Of a total of 1,604 steel pipe and timber piles for the viaduct's 14 piers, only 224 are plumb. Piles in each pier slope in four directions and on three different batters, yet the contractor has averaged 1,200 lin. ft. of piling per day with one steam crane driving rig.

Untreated 13-in. timber piles support all but the two piers for the harbor crossing, which rest on concrete-filled 12-in. steel pipe piles. Each pier has up to 144 piles in six to eight lines, with piles in the outside lines battered 6 on 1 in the direction of traffic, the second lines 12 on 1 and the third 24 on 1. Piles in the end rows batter 6 on 1 normal to the viaduct.

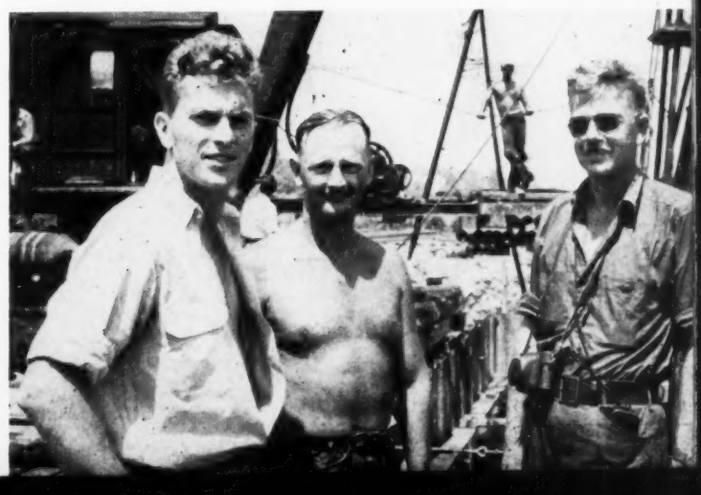
Timber piles 35 to 65 ft. long,

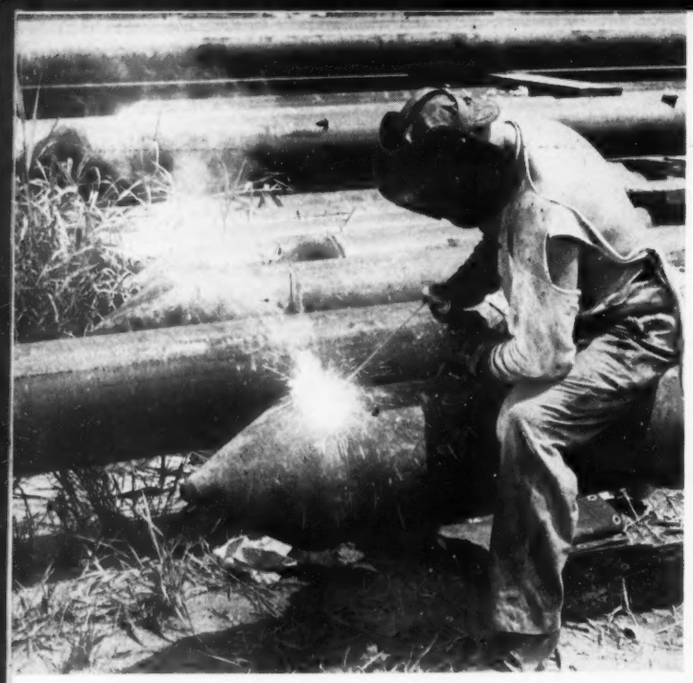


← **TALL STEAM RIG** drives 85-ft. pipe piles for viaduct pier foundation at Roslyn, N. Y. Old Bucyrus crane has 75-ft. boom, 72-ft. leads and telescopic spreader for driving at various batters.

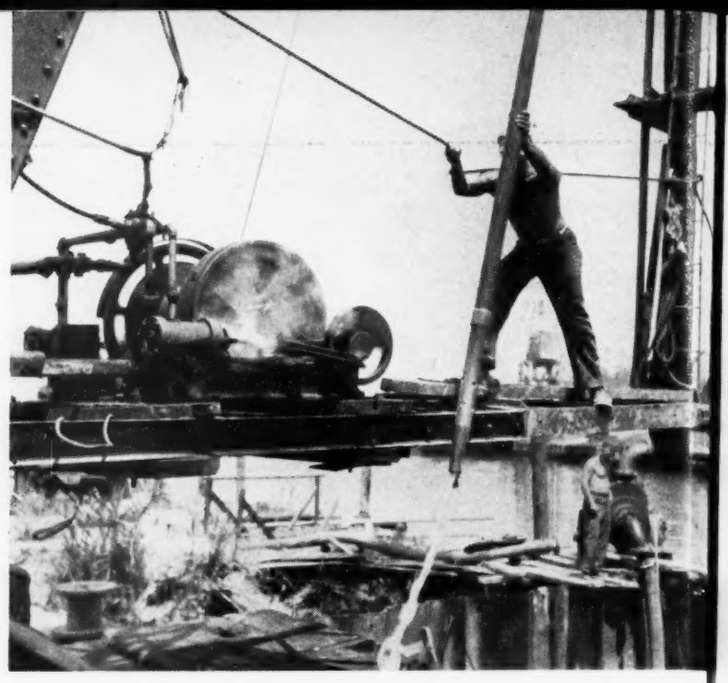


**DIRECTING HOT PILE JOB** are (below, l. to r.): H. WARREN PATTBERG, superintendent for Young Foundation Corp., piledriving subcontractor; WILLIAM KORSU, his general foreman; and HOWARD E. PIERSON, resident engineer for New York State Department of Public Works.





CAST STEEL DRIVING POINT is welded to tip of 12-in. pipe pile 85 ft. long. Pipe comes in 35- to 50-ft. sections, and piles are welded tight before driving to minimize handling and interior cleaning.



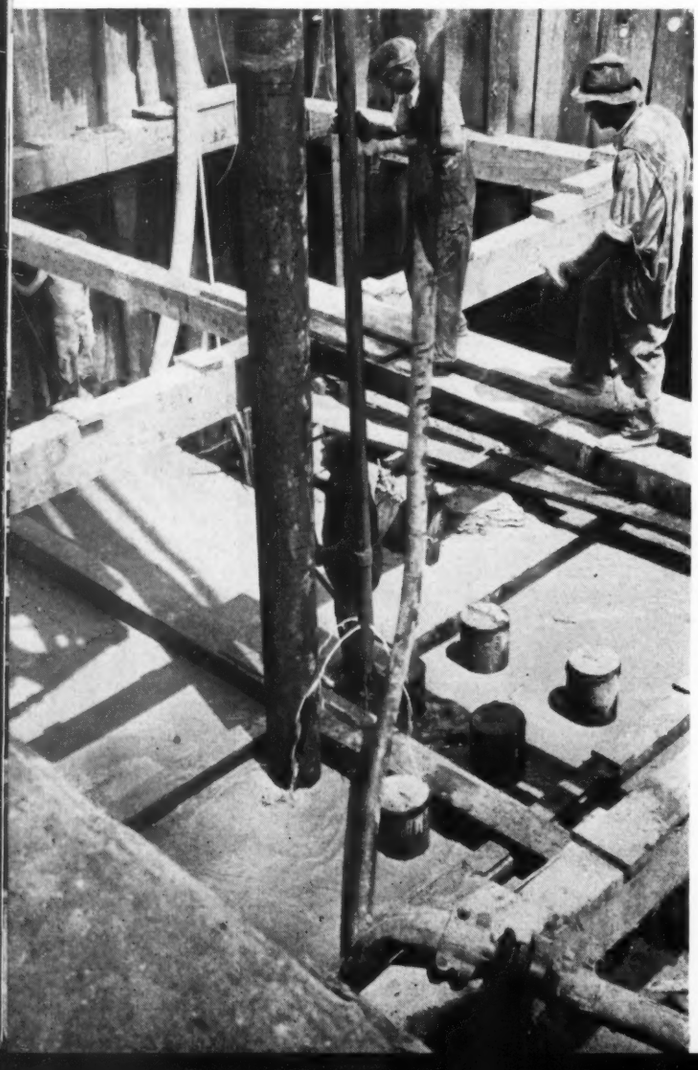
AUXILIARY ENGINE on spreader handles jet pipe, leaving rig's two-drum hoist to lift piles and hammer. Small openings burned in jet pipe near nozzle give horizontal streams for jetting wide holes.

driven to 15-ton bearing on 2¾-ft. centers in shallow, sheeted foundation pits, are put down in a routine manner, but several clever schemes were developed for driving pipe.

Delivered to the job in 35- to 50-ft. sections, the 12-in. steel pipe shells ⅜ in. thick are spliced to 80 and 85 ft. by a cast steel sleeve. Although not specified, the splice is welded all around so that the piles may be lifted and driven in one piece and to exclude water from the pipe, whose end is closed with a cast steel driving shoe.

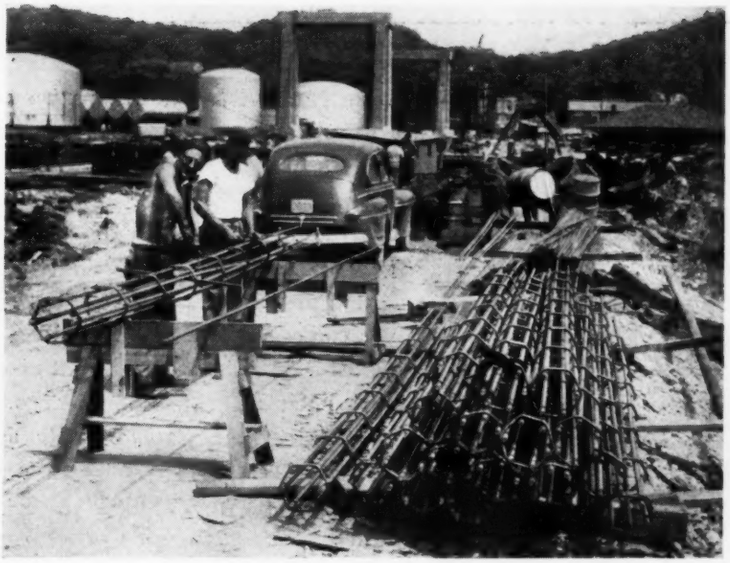
Piles are driven by a McKiernan-Terry 9B3 hammer in 72-ft. leads on a Bucyrus steam crane. Before the shell is spotted for driving, a pilot hole is jetted and the long pile set in it to bring it beneath the hammer. Jet water is supplied at 225 psi. by a 3-stage Griffin Wellpoint pump through a 1½-in. nozzle on a 3-in. jet pipe that is handled by a small donkey

PILE IS DRIVEN in pier cofferdam (below) after pilot hole is jetted and pile dropped in. Driven shells shown, on 3-ft. centers, are capped with wood plugs until filled with concrete.

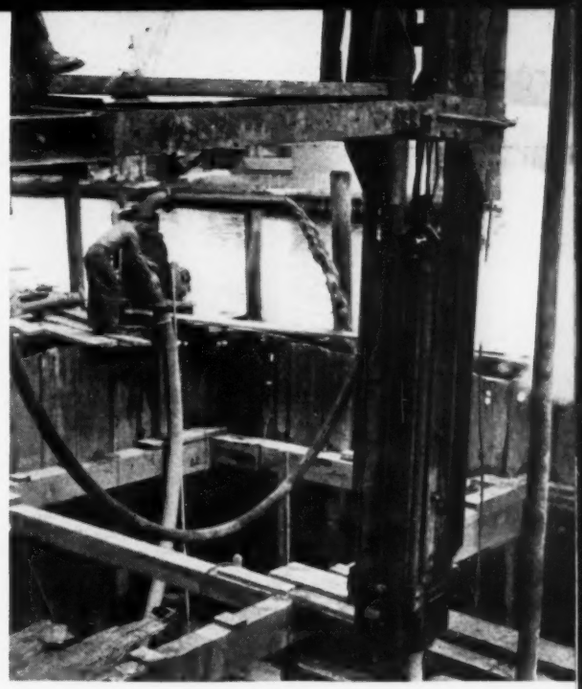




PILES ARE PUMPED OUT with Enberthy steam injector that contractor rigged up as siphon for attachment to bottom of jet pipe. Water and silt enter tops of driven piles when cofferdam pumps are shut down at night.



REINFORCING CAGES for top 15 ft. of pile are tied after hoops are bent on job as union requirement. Concrete is brought up to reinforcing level before gage is inserted in pile shell.



LONG GUIDES on McKiernan-Terry 9B3 hammer enable it to drive 17 ft. below bottom of leads. At rear, 6-in. Marlowe pump cleans seepage and jet water from sheetpile cofferdam.

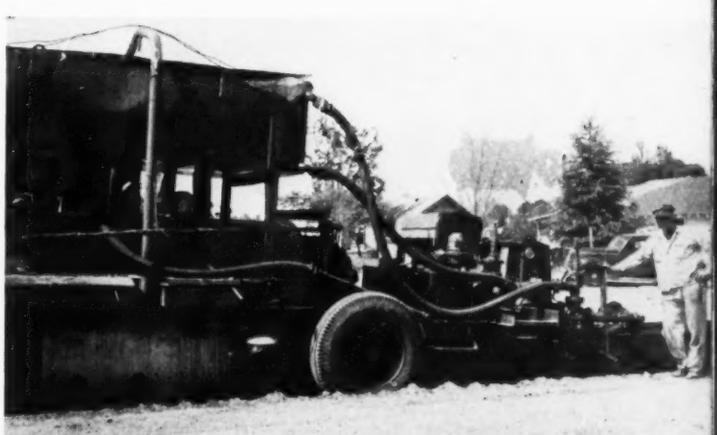
engine mounted on the crane. Eight holes in the sides of the nozzle allow water to escape laterally to jet a large hole into which the pile is dropped. Jetting is continued while the tube is driven with the hammer, but is stopped for the last 20 ft. of driving. Piles are driven to 30 tons, and tops fetch up about 15 ft. below the bottom of the leads. Since the leads are not telescopic, the ordinary angle-iron guides on each side of the hammer have been extended upward and braced together with welded struts to allow the hammer to follow the pile down. After driving, the pipes are covered with wood caps to exclude water, and are later filled with concrete.

# Extra Pump Boosts Asphalt Paver Output

DAILY OUTPUT of a Wood asphalt paver was increased appreciably by adding an extra pump on the rear of the rig on a 16-mi. sand-asphalt road-mix job on State Route 38 in southeastern Georgia. Wright Contracting Co., Columbus, Ga., contractor on the project, installed the pump to eliminate stopping the traveling plant while transferring asphalt from the supply truck to an all-welded 800-gal. tank above the mixer. A 100-hp. Ford engine drives the pump.

A 19-ft. base, which will receive an 18-ft. bituminous surface treatment, is being laid in two 9½-ft. lanes. When mixing a one-lane width to a depth of 6 in., the altered Wood plant has advanced 8,300 ft. in a 12-hr. shift. On some days the machine has placed over 3,000 gal. of RC-2 asphalt in the mix. Although this is the mixer's first job since the extra pump was added, the setup is considered highly satisfactory.

The road project is being handled by the Georgia State Highway Department with the assistance of the Public Roads Administration. L. C. Alexander is superintendent for the contractor.



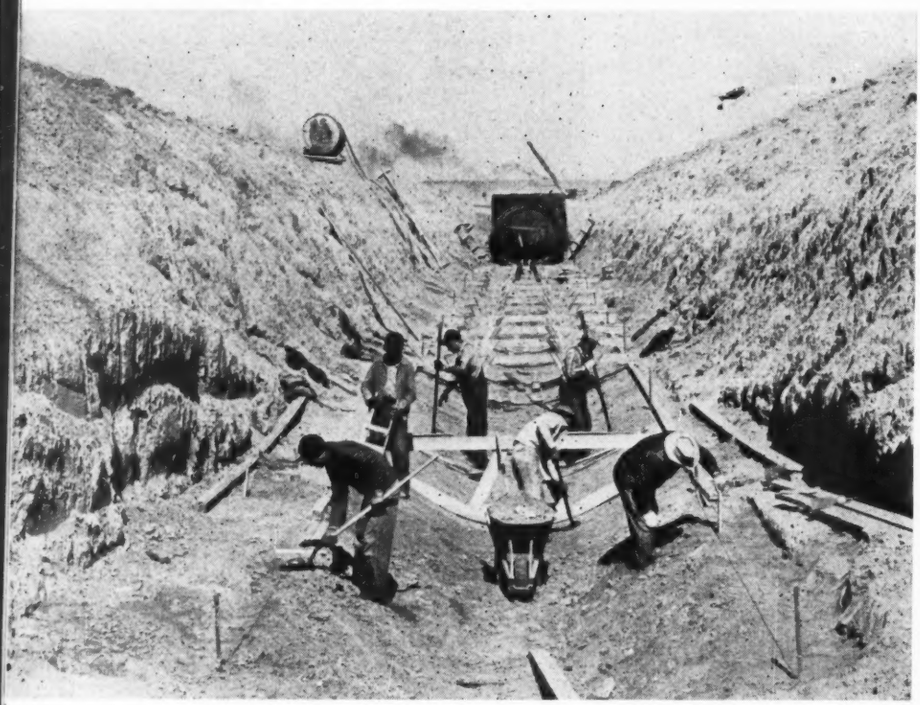
SECOND PUMP on rear of Wood Roadmixer transfers asphalt from delivering truck while machine continues to mix sand-asphalt base for Georgia road.



TRUCK AND MIXER travel along as asphalt is pumped from tank in dump-truck body to elevated 800-gal. tank on mixer. Caterpillar D8 pulls traveling plant, and also powers mixing blades through power takeoff from tractor.

Step by Step FIELD METHODS

# Neat Form System on Big Siphons



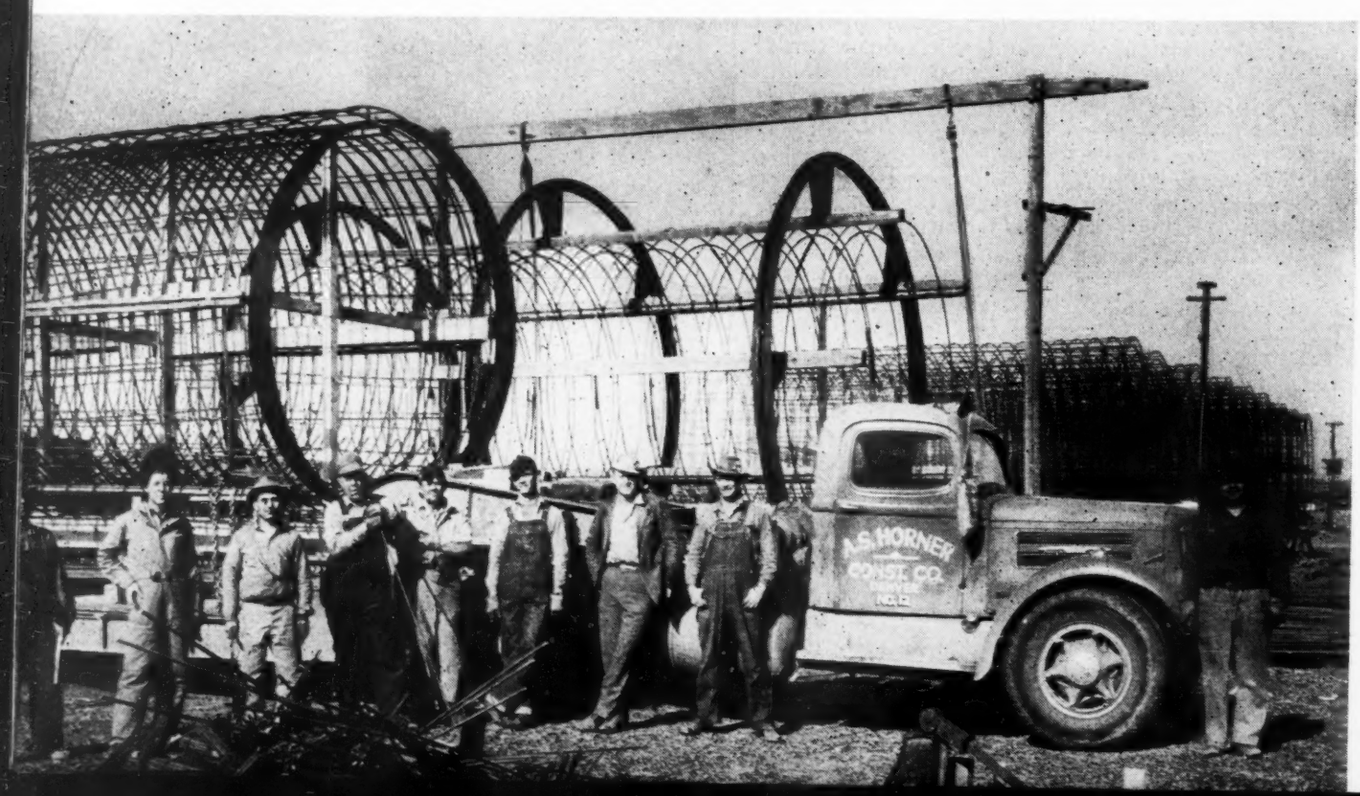
**1** FOLLOWING trench excavation on Tucumcari siphons, first step is fine grading of invert by hand to template grade.

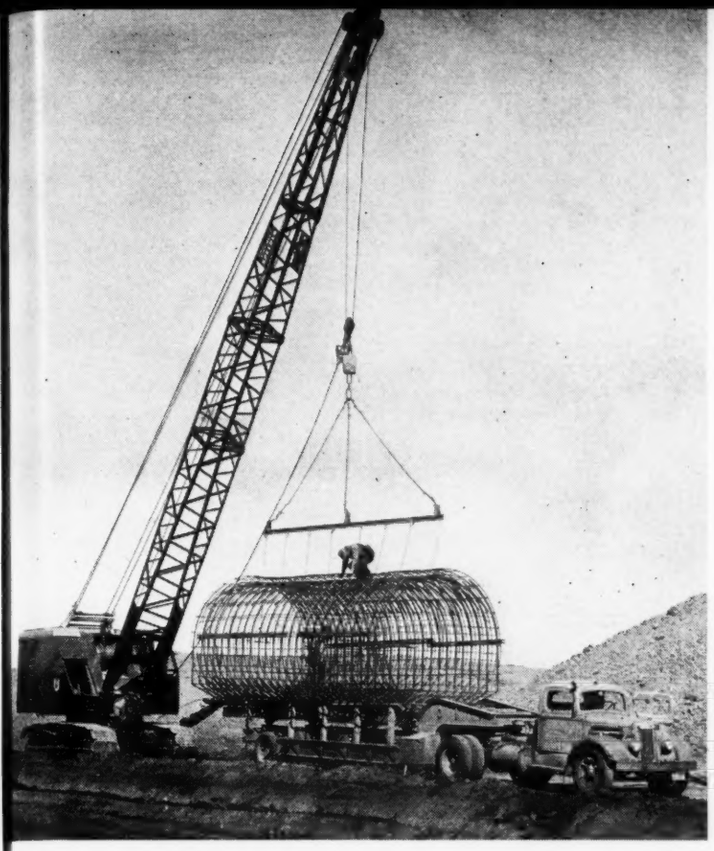
IN POURING 4,600 ft. of 9½-ft. concrete siphons on the U. S. Bureau of Reclamation's Tucumcari, N. M., project, A. S. Horner, Denver contractor, worked out an efficient steel form system with Universal Form Clamp Co., Chicago. Features of the forms include a traveler for handling inside sections, and self-supporting outside units.

The accompanying illustrations show step-by-step methods in handling the forms on the project. Concrete, batched at a central plant and delivered in Rex 2-yd. transit mixers, was cured by the Hunt process. N. M. Starr was project engineer for the Bureau of Reclamation. W. C. (Dusty) Rhoads was superintendent for A. S. Horner Construction Co., Denver.

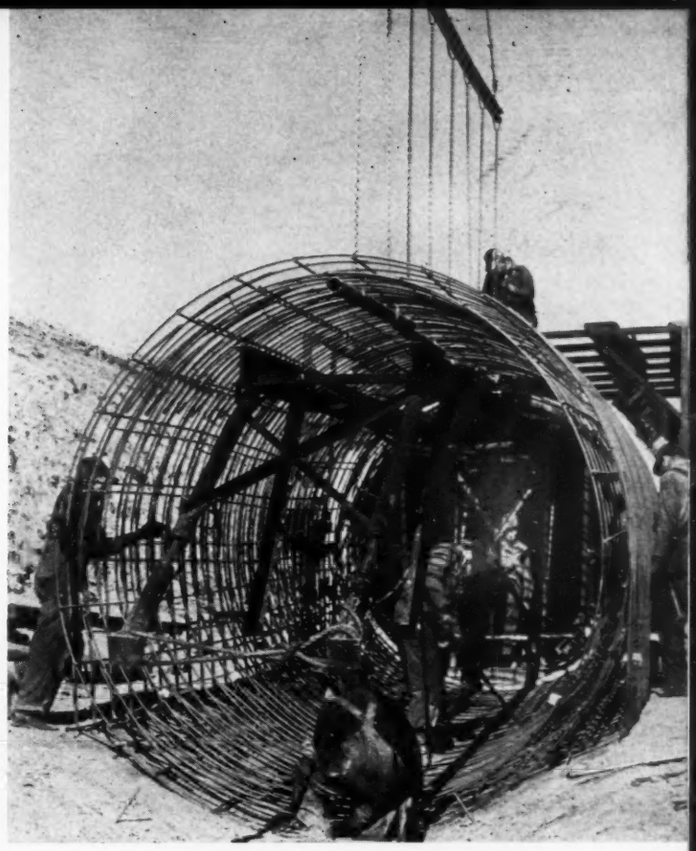


**2** INSIDE REINFORCING CAGE (below), is built up on circular jig (just beyond truck). Jig rings open up to permit cage to be rolled on to dollies riding on narrow-gage track. Then horseshoe-shaped outer cage is built around inner cage. Dollies roll on to track on trailer bed for transporting reinforcing to job.





**3** TRUCKED TO JOB, reinforcing cage is lifted off low-bed trailer and swung into place in trench by Link-Belt Speeder crane.



**4** AFTER REINFORCING is set, traveler for inside form is run out of completed siphon section. This view shows details of reinforcing cage lifting system.



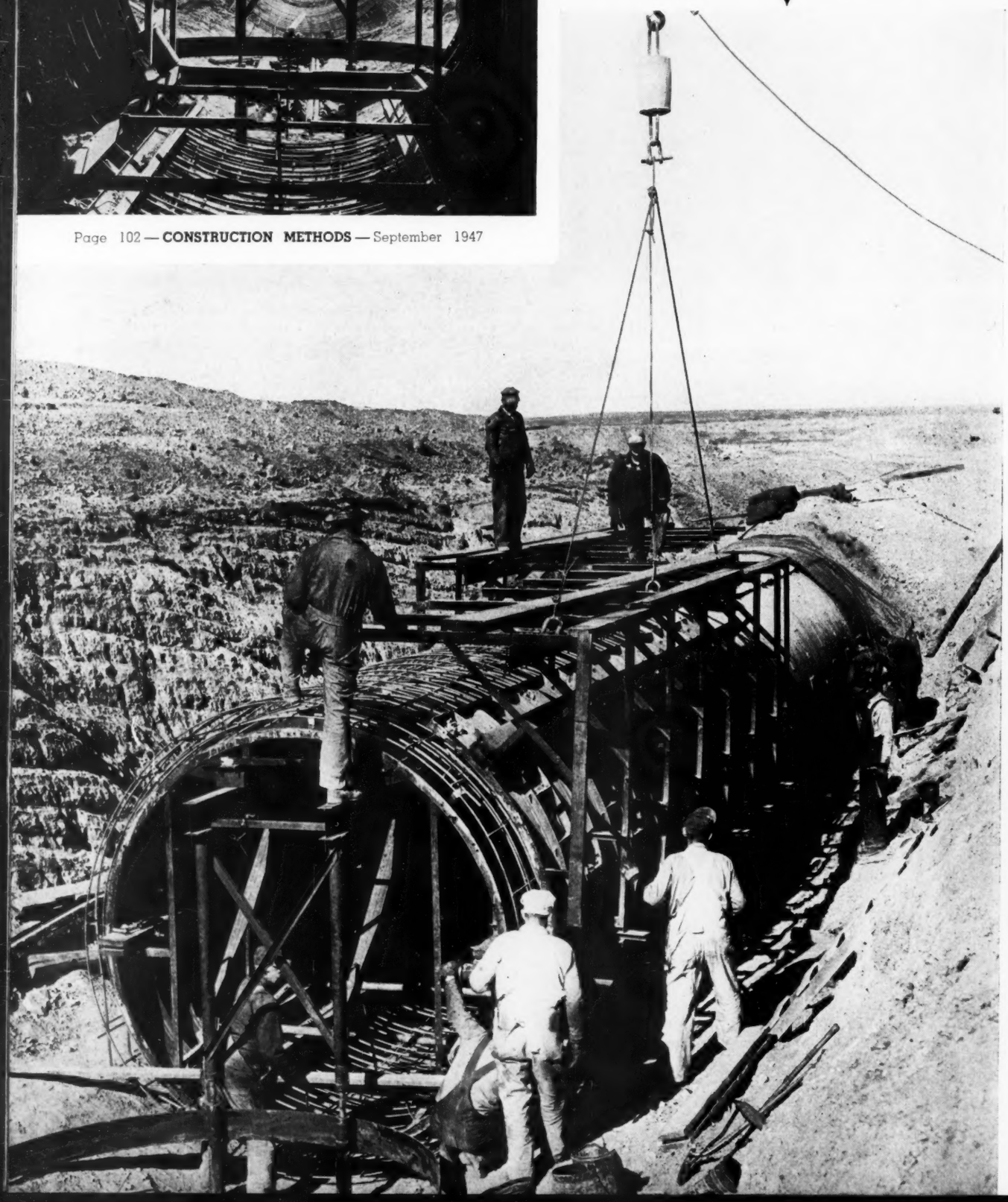
**5** SOMETIMES sections are set up and poured in alternate groups. Below, inner form is being pulled out of a completed section on to traveler. Next reinforcing cage will be set somewhere in open area to right, and traveler and form will be moved again in succession.

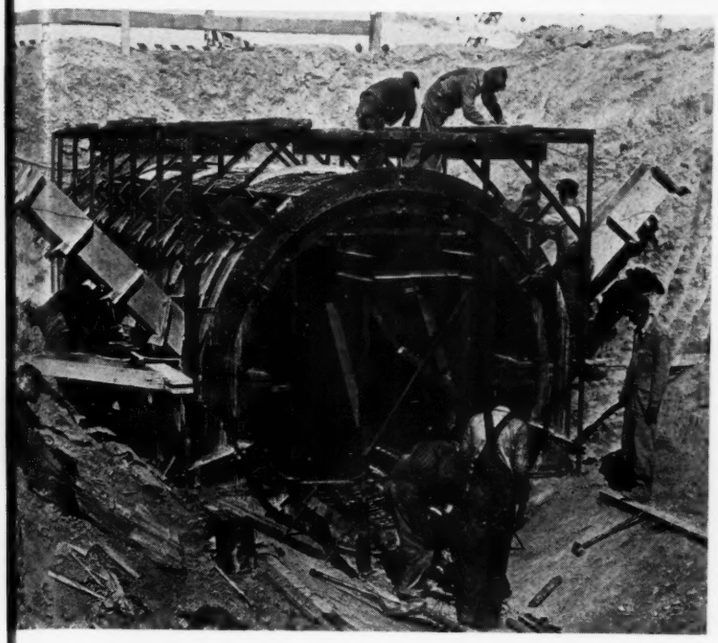




**6** INSIDE FORM in place ready for pour. Form is supported on traveler, which is blocked up to grade by jack screws on traveler legs. Invert of inner form is left open.

**7** OUTER FORMS (below), wtih open crown, are in two halves, each fabricated into structural unit that can be handled by Crane. Ring joint seal for end of section is lying on ground.

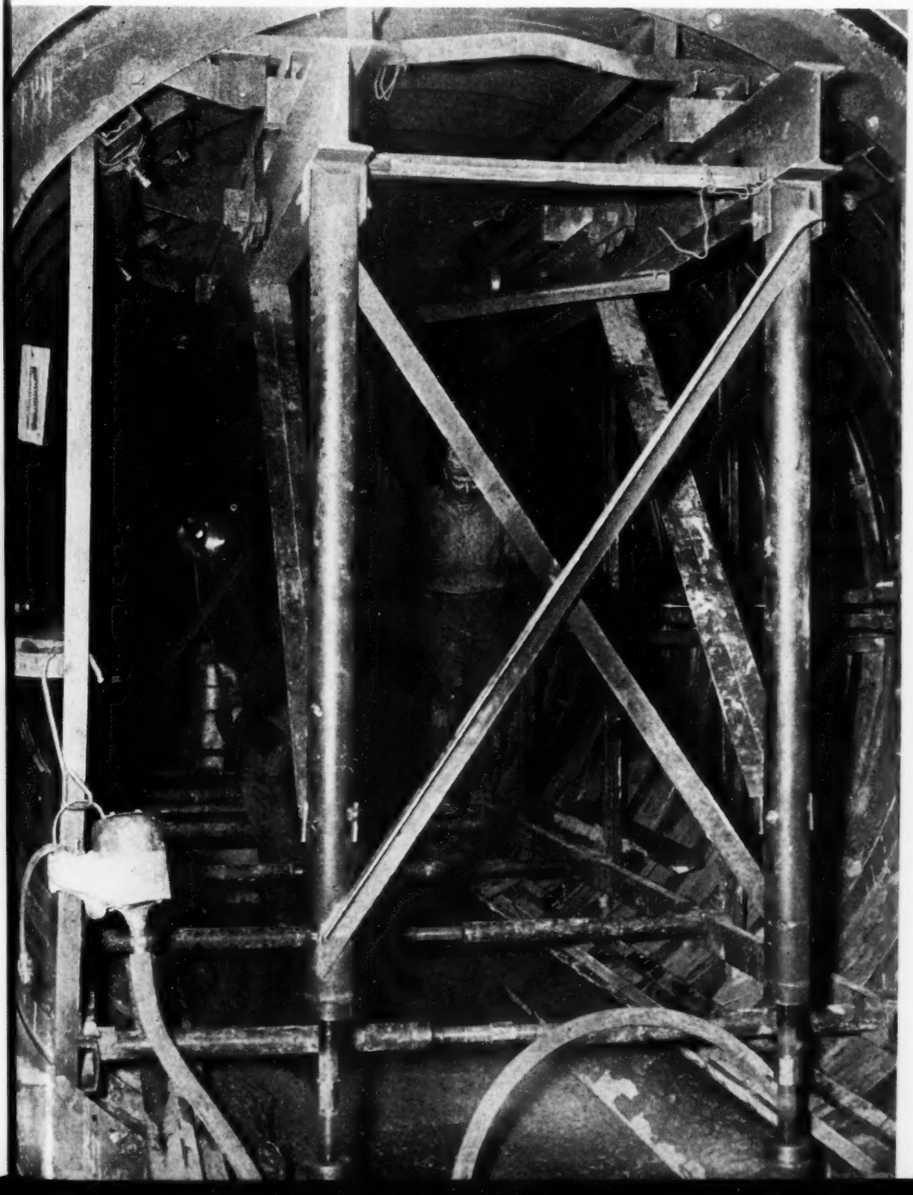




**8** TWO HALVES of outer form structure fit together as self-supporting unit. This section is ready for concrete. Wall concrete is chuted through sides; top concrete is dumped into crown.



**9** CONCRETE is transferred from transit mixer to form in dump bucket handed by crane. Note tagline working through crane fairleads for spotting bucket.

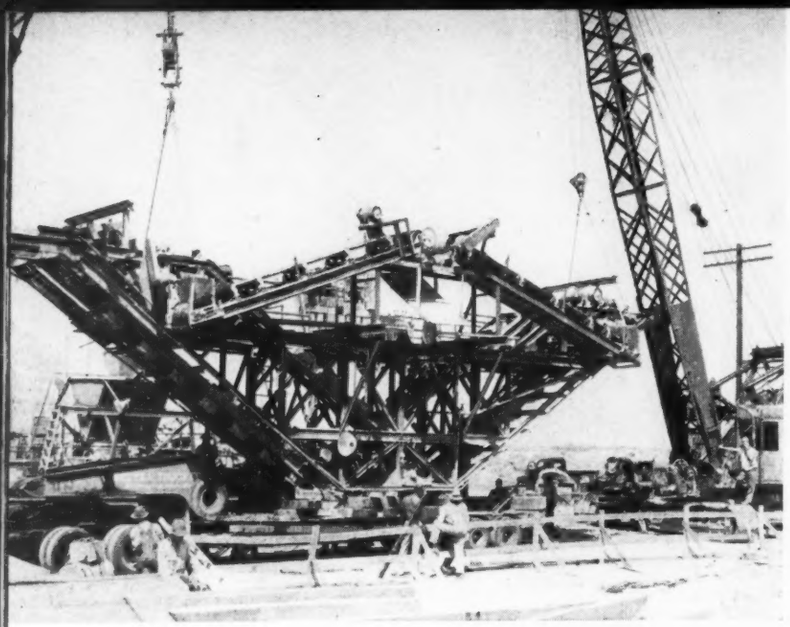


**10** DESPITE open invert and external and internal vibration of concrete, mix does not boil up at bottom. Invert is finished by simple screeding.



**11** FINISHED SECTION of 9½-ft. siphon ready for backfilling.



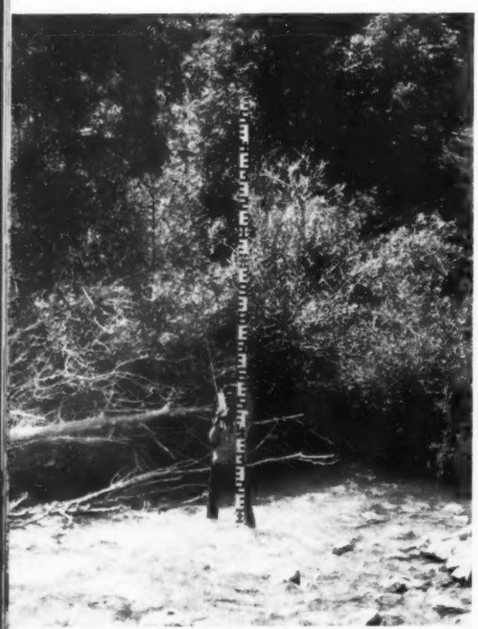


# HOW ...they did it

HUGE CANAL TRIMMER is moved around siphon on All-American Canal in California by loading on to low-bed trailer with two cranes. Shea Company and Morrison-Knudsen Co., Inc., joint contractors on project, figured this was easiest way to jump intervening siphon.

Photo, J. Smillie, U.S.B.R.

SIMPLE ALL-WELDED PIPE STANDARDS (below), carry floodlights at reinforcing yard on W. L. Johnson Construction Co., Hicksville and Columbus, Ohio, runway paving job at Patterson Field, near Dayton. Standards are easily moved, yet are rugged enough to withstand high winds.



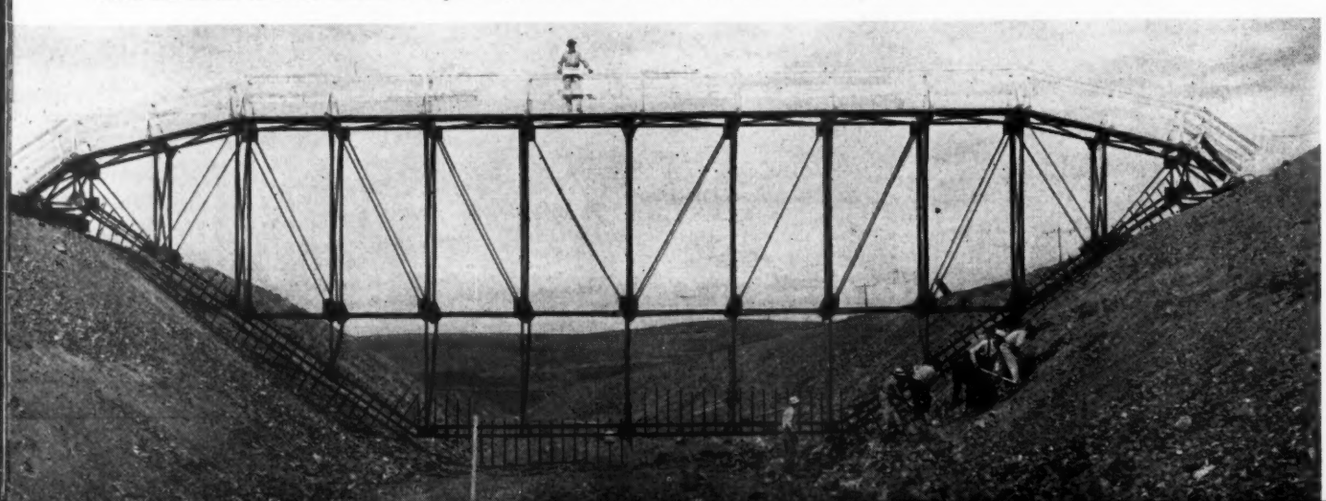
**NO YELLING NECESSARY here against wind or above roar of stream, for this U. S. Bureau of Reclamation rodman is using walkie-talkie radio set to keep in touch with his transitman in surveying site for Porcupine Dam on Little Bear River in Utah.**

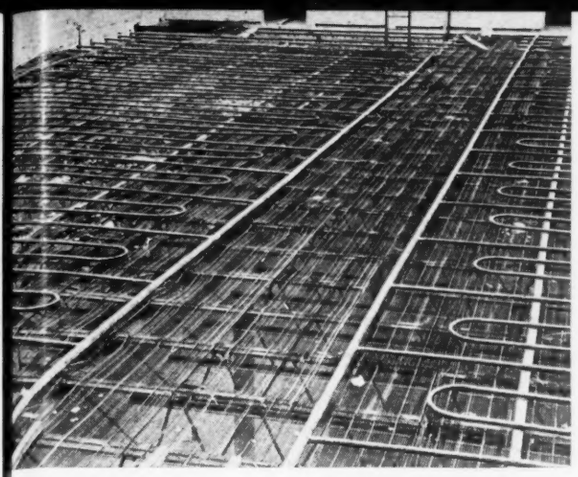
U.S. Bureau of Reclamation Photo





WHISKER JUMBO (below), giant template for gaging fine grading on West Canal of Grand Coulee project is brain child of joint contractors, Utah Construction Co. and Winston Bros. Company. Rig travels on rails which will later carry lining equipment. Adjustable teeth can be set to exact contour of big canal, which is 38 ft. wide at bottom at this point.





METAL BAR JOISTS, supported on I-beams, covered by metal rib lath, form second floor of Chesapeake Auto Supply Co., at Norfolk, Va. Wrought iron radiant heating coils resting on joists were covered with 3-in. concrete structural slab that was topped with asphalt tile finish flooring. Grid pipes were blocked up on wood strips to make them level with headers.

A. M. Byers Co. Photo




AN AUSTRALIAN'S IDEA of a traveling bituminous road-mixer is this rig developed by Colfix Emulsified Bitumen Products, Subiaco, Western Australia. Self-propelled machine elevates batches of road metal, delivered by truck, from front hopper to mixer box by screw conveyor and bucket elevator. Mixed batches are dropped on road through trap door in mixer box and then spread by drag screed towed by rig.

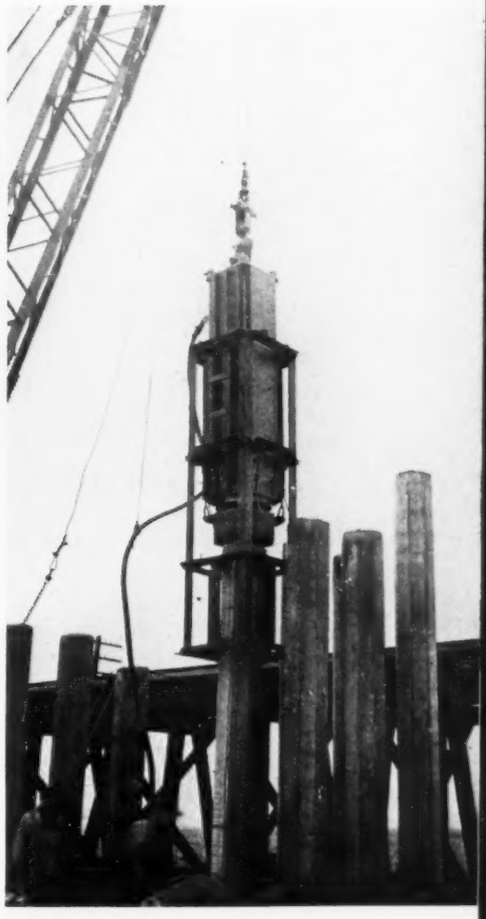
McGraw-Hill World News



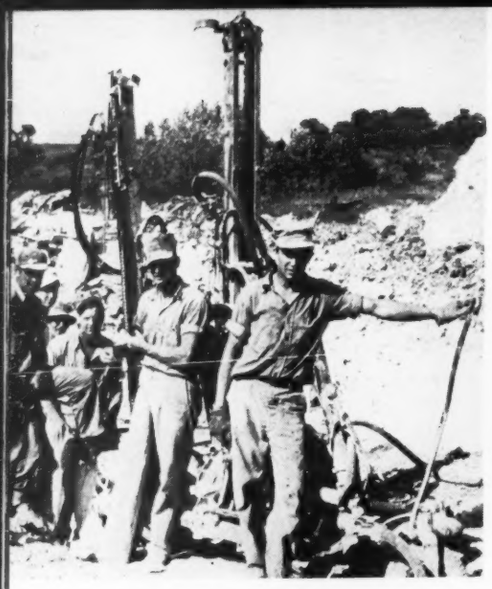
ROCK-RIPPING PLOW breaks up near-surface coral rock in Florida land clearing operations. Mounted on Bucyrus-Erie bulldozer frame attached to International TD-18 diesel tractor, plow is slanting blade 4 in. thick and 30 in. wide fastened to heavy upright member by six 1-in. clamps. In front of plow is depth shoe which can be raised or lowered. Attachment was built by E. E. Collins Contracting Co., of Miami.

HAND-MADE SPRAY BOOM (below) applies weed killer along highway rights-of-way. Horizontal spray bar is fixed to bumper; boom is 20 ft. long and has fan nozzles 16 in. apart. Spray elbows are attached to pipe by 1/4-in. couplings sawed in half and welded on. Engine and pump are mounted on rear of truck adjacent to 55-gal. drums containing spray material. Sections extending beyond width of truck can be raised or lowered to any angle by manipulating clothes lines from cab. Unit was designed by Dow Chemical Co. technicians.



HAMMER-MOUNTED LEADS encasing top of pile keep big concrete piles straight in driving new approach to L.&N. Ry. Henderson bridge over Ohio River. Angle-iron framework, attached to McKiernan-Terry S-14 hammer, replaces conventional leads. Railroad is doing job with own forces, with T. Clouse, supervisor of bridges and buildings, and J. W. Hoyt, resident engineer, in direct charge.



WORKING with these two Worthington wagon drills during winter months, this crew drilled and shot in advance about one-fourth of 100,000 cu. yd. of rock on Indiana highway job so shovel and scrapers could proceed at fast pace when grading season opened.



READY FOR EXCAVATION, this is one of four big cuts stripped, drilled and shot during winter to speed up summer grading. Some secondary shooting is necessary on boulders too large to load.

# Winter Drilling Speeds Su

BY RUNNING TWO WAGON DRILLS all last winter in previously-stripped rock cuts, and shooting the rock but not removing any of it, the John F. Bloomer Co., of Appleton, Wis., contractor on an Indiana highway project, kept excavation costs to a minimum and prevented the difficult rock excavation from creating a bottleneck in their grading program this summer.

Using a nine-man crew, the contractor found he could operate two Worthington wagon drills, each powered by a Worthington 315-c.f.m. Blue Brute compressor, at near-summertime efficiency. But freezing haul roads in the winter, followed by spring thaws and unseasonable heavy rains made it inadvisable to operate the grading and hauling equipment until early this summer.

Grading quantities on this $400,-600 project, which is 4.2 mi. long, include 102,500 cu. yd. of solid rock—located principally in five major rock cuts—and 290,000 cu. yd. of common excavation. It



WINTER-BLASTED ROCK is loaded by 2-yd. Northwest shovel in one of big cuts. Bulldozer keeps pit cleared up and maintains haul roads.





APPARENTLY SATISFIED with the job's progress are these three Indiana State Highway engineers associated with the project. Left to right they are: C. H. HUNNELL, assistant engineer of road construction, J. S. TAYLOR, project engineer, and WM. L. KING, assistant district engineer.



STRIPPING IRREGULAR SURFACE of hard limestone is tough on scrapers. Mechanics here are trimming up broken edge of front apron. Bowl cutting edges also take beating.

# ds Summer Road Grading

forms a part of 15½ mi. of relocated State Route 37 between Bloomington and Martinsville, Ind.

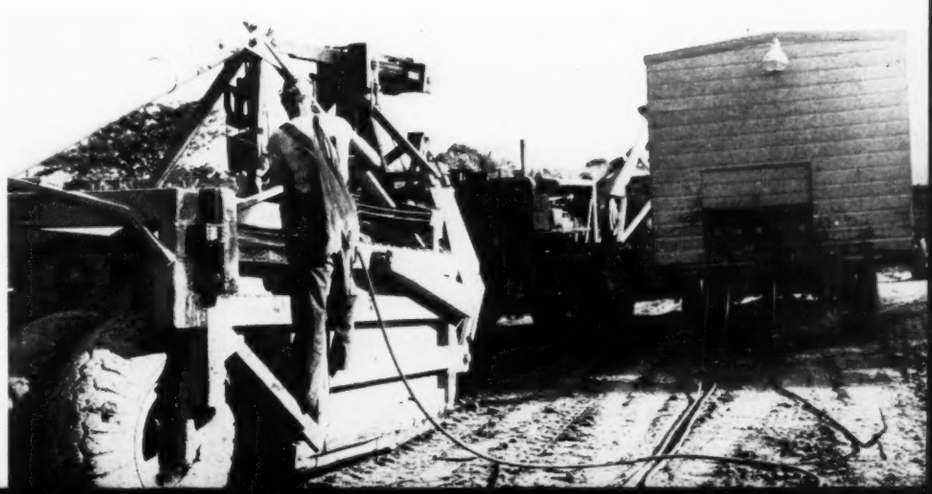
The completed highway will carry a 22-ft. reinforced concrete pavement, plus an 11-ft. concrete truck lane on all ascending grades exceeding 3 percent. It replaces a steep and tortuous old highway containing 10-percent grades, sharp curves of 300-ft. sight distances, and carrying up to 2,600 vehicles per day, 25 percent of which are trucks.

By running his two drill rigs all winter, the contractor had some 25,000 cu. yd. of rock excavation ready to be removed and placed in the roadway embankment when grading operations got underway early this summer. Using a 2-yd. Northwest shovel and five 10-yd. end-dump Euclid trucks, the contractor is moving some 1,200 cu. yd. of rock excavation per 9-hr. day, on an average haul of 600 to



*Lined Up . . .*

String of grading equipment lines up alongside covered truck-mounted service station at end of shift for greasing and oiling.



*For This . . .* →

Each unit gets careful service through four grease lines and one air hose carried on reel at rear of grease truck. This contractor finds regular oil and grease service pays off in better equipment life and operation.

800 ft. His contract price for solid rock excavation is $1.15 per cu. yd.

Most of the rock cuts carry 11 ft. of earth overburden which is removed and placed in the embankment by tractor and scraper. Some of the rock in the cuts had such an irregular top surface as to require stripping by dragline instead of by scraper.

Where the scrapers can operate, however, three 20-yd. and two 12-yd. LeTourneau scrapers, each pulled by a D8 Caterpillar tractor, are moving up to 3,500 cu. yd. of overburden per day, for a 500-ft. average haul. As would be expected, stripping operations require considerable repair to the cutting edges on the scrapers, by welding.

### Tough Drilling and Blasting

Much of the rock excavation is Borden shale, which is very hard to drill and shoot, yet disintegrates when exposed to the weather. Some of the rock is a hard limestone, equally difficult to handle.

In addition to tough drilling, the rock is interspersed with horizontal layers of soft earth, which increases the difficulty of shooting. Although these earth seams are only 2 to 12 in. thick, all holes must be carefully loaded with alternating charges of dynamite and sand packing to avoid placing the dynamite too close to an earth seam, thus reducing its effective blasting power. Production of rock, however, averages slightly under 1 cu. yd. of rock per lb. of dynamite.

In general, holes are drilled from 12 to 18 ft. deep, spaced 5 ft. apart and loaded with ½ lb. of 40-percent Atlas Giant Gelatin dynamite per foot-depth of hole. They are wired in series, with up to 200 holes in a complete circuit. Three sizes of drill bits are used: 2¼ in. for the top 6 ft; 2½ in. for the second 6 ft.; and 2¾ in. for the bottom 6 ft. of the 18-ft. holes. Some 60-percent strength dynamite is used in the deeper holes.

With the drilling and blasting operations progressing on a smooth-working schedule, the contractor's next chief concern is the efficiency and servicing of his hauling and grading equipment, which represents a current value of more than $200,000.

In addition to the scrapers, dump trucks, compressors and drill rigs, his total equipment outlay includes: two No. 12 Caterpillar patrol graders; two D8 and one D4 bulldozers; one RD7 tractor with sheepsfoot roller and disk; one D8 tractor operating as a pusher; and two LeRoi compressors, models 55 and 105, operating two Ingersoll-Rand jackhammers.

### Servicing Haul Roads

The contractor has found that well-maintained haul roads are good insurance against wear and tear on equipment. Accordingly, one bulldozer operator has the responsibility of keeping the haul roads in serviceable condition. When not engaged in this operation, he assists a second bulldozer on the rock-and-earth-fill roadway embankment.

Two full-time mechanics keep the equipment in first-class operating condition, while an experienced service man has the responsibility of keeping it lubricated.

The grease truck contains a five-line Grayco pressurized greasing unit mounted on a 1½-ton Chevrolet truck chassis. It has two grease lines carrying transmission grease, two lines containing roller-bearing grease, while the fifth line carries air pressure only. All five lines are mounted on 12-in. tension reels at the rear of the truck to expedite servicing operations.

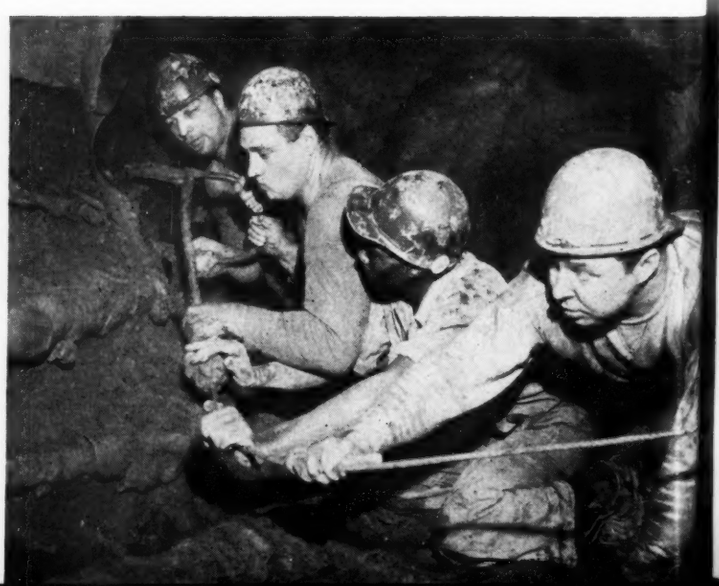
And last, but not least—Bernard J. Laughlin, engineer in charge of the work for the contractor, believes in good housekeeping—all equipment is kept well painted, and safety regulations for the operation of each piece of power equipment is stenciled in a prominent location on the equipment for the benefit of the operator.

The new road is a federal-aid project, under the supervision of Carl E. Vogelgesang, chief engineer of the State Highway Commission of Indiana. J. T. Hallett is engineer of roads; and F. L. Ashbaucher is engineer of road construction, assisted by C. H. Hunnell. J. S. Taylor is project engineer, reporting to R. H. Harrell and William L. King, district engineer and assistant district engineer, respectively.

# Vanguard of Chicago Straphangers

WORKMEN WITH POWER KNIFE mine out Chicago's blue clay ahead of the shield to resume final stage of tunneling on the war-delayed Dearborn St. subway system. First shove of the shield was made Aug. 1. Contract for 2,271 ft. of twin tunnels and a set of turn-around switch tracks in Congress St. was let early this year to combination of S. A. Healy Co., Chicago; Peter Kiewit Sons Co., Omaha, and Morrison-Knudsen Co., Inc., Boise, for $8,235,000.

Two shields, left in place by Healy upon completion of his previous Dearborn St. contract, will drive about one-third of the remaining twin tunnels. Virgil Gunlock, Commissioner of Subways and Superhighways, hopes to have the entire system in operation in 1949.



# LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB



**By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor**

## *The Case of the Bank Failure*




An interesting situation arose when an owner owed Tractor Conn $10,000 and paid by a check on the Brick Bank.

"I'll take no chances," Conn assured himself, walked down to the Brick Bank and had the check certified.

"Want the cash?" the paying teller inquired.

"No, I'll get the cash tomorrow morning," Conn told him. The bank suspended that afternoon and Conn went back to the owner and demanded payment.

"Nothing doing. When you had the check certified you switched debtors and agreed to look to the bank instead of to me," the owner told him. The Supreme Court of Indiana, in a case reported in 123 Indiana, 78, ruled that the owner was right.

## *The Case of the City Ordinance*



TRACTOR CONN signed a contract to erect an apartment house and began work. A few days later the building inspector called on the owner and pointed out that Conn had erected stagings over the street contrary to certain city ordinances.

"Unless he complies with the law, you will be liable to a penalty," the inspector pointed out and the owner promptly protested to Conn.

"There's nothing in my contract on that point and I'll do as I please," Tractor Conn retorted.

"Even though the contract is silent on the point, the law will imply that you were to do the work in accordance with the city ordinances," the owner maintained, and the law is in his favor on this point.

In an Idaho case involving the construction of a sidewalk the Supreme Court of the state says:—

"Where one contracts to do a piece of work and there is at the time an existing law prescribing the specifications for that kind of work and requiring that all such work be done in accordance with the statute or ordinance, as the case may be, the statute or ordinance becomes part of the contract, and the one who undertakes to do such work impliedly agrees to do it in such a manner as to meet the requirements of the law."

## *The Case of the Buyer's Mistake*



Tractor Conn had given a verbal order for brick exceeding the limit fixed by the familiar statute of frauds. The sale was, consequently, not binding on either party.

Then Conn accepted part of the order, which made the sale binding, and refused to accept or pay for the balance.

"You accepted part of the brick," the seller pointed out.

"I did so in ignorance of the fact that the oral sale was not binding on me," Conn protested.

"Here's where ignorance is a bad drawback, but no excuse," the seller averred, and the Massachusetts Supreme Court ruled in his favor.

"Where a man performs a duty, even if an unenforceable one, such as paying a barred debt, or accepting something which he had bought under an oral contract, the mistake affords no reason for excusing him," said the Court.

**More Legal Adventures of Tractor Conn Next Month**

# THE RUHR— VALLEY OF DECISION

FOR AMERICANS and for American business the most important single spot on earth today is the Ruhr Valley of Germany—a valley no bigger in area than the State of Rhode Island. Upon recovery in the Ruhr hinges recovery in Europe. Upon recovery in Europe hinges the peace of the world.

No machine can run with its most important part missing. Western Europe without the Ruhr is a dead machine. Before the war, over half the coal and steel produced in the Western part of Continental Europe came from this one little valley. Today, the fact is that no other region in Europe has the technical skills and enterprise to produce the industrial supplies which Europe must have if it is to help itself back to a self-supporting economy. And, after observing Europe for many weeks, I am convinced that no one but the United States can successfully supervise the rebuilding of the Ruhr.

If you will keep four considerations in mind, as the international politicians gamble, you can easily tell whether the United States is playing its proper role in the rehabilitation of the Ruhr. Here are the four considerations:

**I. We are paying for the Ruhr rehabilitation (or the lack of it).**

**II. We alone have the skill and enterprise to supervise its rebuilding.**

**III. It will be a tough organizing job requiring money, hard work, and outright sacrifice on the part of management men and technicians.**

**IV. We had better do it well if we love our children.**

**I**

**We are paying for rebuilding the Ruhr**—or we soon shall be. The British now control the Ruhr, its government and its industry. They have been paying out about four hundred million dollars—American dollars—a year to buy the food, raw materials and equipment needed to rebuild the Ruhr. The British must spend American dollars for these supplies because the supplies can not be bought anywhere but in America. Thus far the British have, in effect, obtained the dollars which they spend for the Ruhr by drawing them out of the $3,750,000,000 loan which we granted Britain last year.

Now the loan is fast running out. The British lack dollars and other assets. We must take over, directly or indirectly, the dollar expenditures for rebuilding the Ruhr. We shall pay for it. Therefore—

**II**

**We should supervise it.** The British have been running the Ruhr's industry. They might conceivably suggest to Washington that they continue to run it while we pay the bill. *That we should never agree to.* There is a sound old rule that he who pays the piper shall call the tune.

Perhaps we would not need to invoke that rule if the British had done a good job reviving the industries of the Ruhr. *They have done a poor job—physically and ideologically.*

The physical output of the coal mines and steel mills of the Ruhr in recent months was actually smaller than at the first of the year. Production of coal amounts to little more than half of the pre-war 127 million tons per year. Steel productions limps along at one-sixth of the pre-war rate—far below the volume permitted even under the present low level-of-industry plan for Germany.

Ideologically, the British Labor Government has tried to export to Germany the brand of socialism which is making such a dubious record at home. Foreign Minister Bevin—although he may now have misgivings about it—committed himself to nationalization of the Ruhr's coal and steel industries. British representatives have pushed hard to get General Lucius Clay, our able military governor in Berlin, to agree to socialization of the Ruhr. So far, he has resisted this pressure, but our State and War Departments and we as individuals must back him up to the limit if he is to continue to combat this pressure successfully.

Even if the British government were not socialist, there would be good reason for questioning the ability of Britain to rehabilitate the industries of the Ruhr. In recent generations, the British management class has shown itself more

interested in cartels, restricting output, and allocating markets, than in full-steam, ingenious enterprising production.

Certainly the British must remain full partners in the *political* administration of Germany. No one suggests anything else. However, their recent production record demands turning the job of revitalizing the Ruhr industries over to the nation which is paying the bill and which leads the world in production.

If we have any faith in the business philosophy by which we have lived and prospered for 170 years, we should demonstrate that that philosophy still is dynamic by taking up the burden of the Ruhr.

**III**

**It will be a tough job.** It will require men and supplies and money from the United States. It can not possibly be done in less than five years. A list of some of the necessary steps shows how hard it will be.

A. Plans for socializing the Ruhr should be shelved quickly. The industries there should remain in trusteeship for five years. Then the Germans themselves should decide their ownership; let us hope that by that time we can demonstrate to them that private ownership and private initiative mean high production, good distribution and high wages.

B. The top supervising management jobs—both the top policy and the top technical jobs—required outstanding business ability. That is why American business men must be willing to go to Germany, sacrificing comfort and leisure, and even income, if necessary.

C. Germans should take over the management job at the operating level. The Germans are good technicians. They have a greater incentive than anyone else for getting the Ruhr back in working order. That incentive should be harnessed.

D. Special effort should earn special rewards. There is nothing wrong with the Ruhr (or the rest of Europe) that hard work will not cure. Before a man will work hard, he must feel that his work will advance him and his family. That simple motive, which powers our whole economy, must be revived in the Ruhr. To revive it requires enormous ingenuity and work... a new currency... a logical customs union... a sensible ration system... enough food, clothing, housing and consumer goods so that the worker can buy something with his currency and his ration points.

E. America will have to furnish a good share of these foodstuffs and supplies. Certain key items of equipment also will be needed. Only as we succeed in our job can this flow be diminished.

F. A sensible priorities system must channel Ruhr coal and steel into those uses which, in turn, will further increase output. Repair parts for railroad cars should stand high on the list. Housing, coal equipment and machine tool parts should come ahead of the automobiles and permanent steel bridges which at times have been accorded preference.

German technical management of industry in the Ruhr—point C above—need not mean *political* control of the Ruhr by some future sovereign German state. As the French know, the Ruhr, next to the atomic bomb, is the most dangerous weapon in the world. It is the arsenal without which no European power, even Russia, would dare start a war. There is no sense in turning that arsenal back to the *political* control of a nation which twice in 25 years used it for aggression. (And three times since 1870.) Surely we have enough resourcefulness to let the Germans who live in the Ruhr run the industries there without turning political control over to a central Prussian state.

This partial list shows how much hard work and statesmanship the United States must put into the Ruhr. But—

**IV**

**We had better do it if we love our children.** If we do not do this job—if we should pull out of Germany or fail there—we leave behind us a vacuum which neither Britain or France has the strength or ability to fill. Russia has the will and, if left unopposed, the power to fill that vacuum. Therefore, the day we fail or the day we pull out of Germany, the third world war takes a long step closer to us and certainly to our children. What greater incentive does any American need to work for than our success in this field?

If we succeed, the western zones of Germany in conjunction with Belgium and Holland can become self-supporting in three to five years. That way lies recovery for all Europe. That way lies peace for the world. That way lies vindication for the American business system in which we believe—the system of competitive private enterprise, with freedom for the individual and his initiative.



*President McGraw-Hill Publishing Company, Inc.*

THIS IS THE 60TH OF A SERIES

# *Present and Accounted For*...A PAGE OF PERSONALITIES



ON A FOUR-MILE SECTION of New York State's Thruway near Victor in Rochester district, EVERETT SARGENT (left), is superintendent of grading, W. S. BELL is in charge of bridge work and L. J. KLOCK is project manager for S. J. Groves & Sons Co. The $2,000,000 contract includes relocation and paving of 2 mi. of Route 96 with grading and structures on Thruway.



NEW PRESIDENT of C. F. Lytle Co., general contractors of Sioux City, Iowa, is FORREST W. PARROTT, who moves up from vice-president as Francis K. Lytle, principal owner, becomes chairman of board of directors. Parrott is current president of Associated General Contractors of America, and has been with Lytle since 1921. Ernest E. Hall, executive assistant to Maj. Gen. Philip B. Fleming, Federal Works Administrator, joins the firm as vice-president. Besides Lytle, Parrott and Hall, new board of directors includes Wm. H. DeButts, Edwin G. Wernertin, Harvey Rice, and D. W. Clayton, who is also named vice-president.



IN CHARGE of Cleveland office for Merritt-Chapman & Scott Corp. since 1936, SHERMAN H. SERRE has been named resident vice-president of firm for entire Great Lakes Region, with headquarters in Cleveland. He has been with company since 1925.



NEW CHIEF ENGINEER of New York State Department of Public Works is B. D. TALLAMY, who joined department in 1945 after having served as chief engineer of Niagara Frontier Planning Board in Buffalo since 1937.



NAMED DIRECTOR OF PUBLIC WORKS in Ohio is GEORGE B. SOWERS, former city engineer and chairman of port and harbor commission in Cleveland. His predecessor, Frank J. Raschig, will remain in department as consulting engineer.

APPOINTED CONTRACTING MANAGER of American Bridge Co., U. S. Steel subsidiary, in Boston district office is J. R. THOMPSON (below), successor to W. B. Hunter, who has become senior contracting manager in Chicago office.



ONE TOP-NOTCHER decorates another—LIEUT. GEN. RAYMOND A. WHEELER (below, left), Chief of Engineers, presents BRIG. GEN. LEWIS A. PICK with Oak Leaf cluster in lieu of second Distinguished Service Medal for his work in completing military construction program in Missouri River Division and Seventh Service Command. Gen. Pick served as Division Engineer at Omaha during 1942 and 1943, when construction projects aggregating $1,500,000,000 were being rushed to completion. After two years as commander of Army Service Forces, C-B-I theater, he returned to Omaha as Division Engineer, Missouri Valley Division, to execute Army Engineer part of Missouri River development, which he had planned during his previous assignment there.



# CONTINENTAL BELT CONVEYOR IDLERS ROLL ON TIMKEN BEARINGS

All types of belt conveyor idlers now manufactured by the Industrial Division, Continental Gin Company, Birmingham, Alabama, are equipped with Timken Tapered Roller Bearings. Result, the essence of smoothness in operation; no belt drag — belts last longer; less lubricating attention required — effective sealing keeps lubricant in, dirt and moisture out; lower maintenance; longer equipment life.

Inside or out — rain or shine — hot or cold, Timken Bearing Equipped belt conveyors deliver all kinds of material — from light grains to heavy ores — any distance quickly, constantly, economically. Make sure you have them. Look for the trade-mark "TIMKEN".

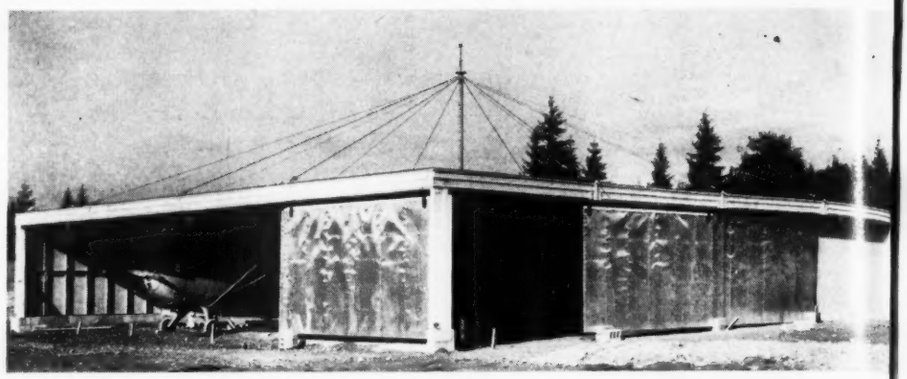
THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO




Application of Timken Bearings in Continental belt conveyor idlers.

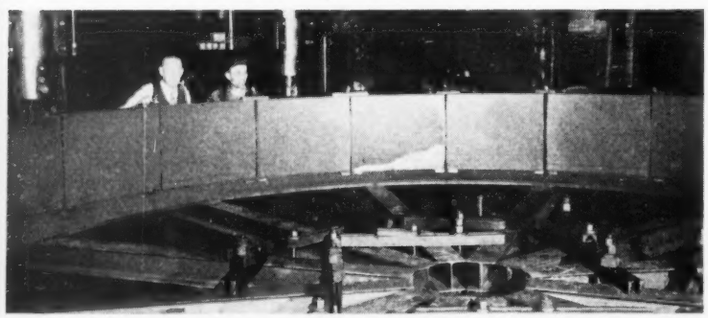
NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◐ AND THRUST —▯— LOADS OR ANY COMBINATION ✳





SKYHOOKS SUPPORT ROOF of prefabricated hangar erected at Mercer Airport Bellevue, Wash., in less than two days. Produced by Timber Structures, Inc., Portland, Ore., 56x56-ft. structure houses four planes in individual T-shaped spaces. Twelve cables suspend roof from central 20-ft. steel mast to eliminate heavy girders or trusses over 41-ft. door openings in each wall.

←
GOLF BALL on red tee is prototype for this 40,000-gal. welded steel watersphere erected on 65-ft. tubular riser by Chicago Bridge & Iron Co. at Tam O'Shanter Country Club, Chicago. (Step-by-step picture story in "Construction Methods," Jan., 1947.)



WORLD'S LARGEST BRAKE LINING is made by Raybestos-Manhattan, Inc., of Passaic, N. J., to use in Europe on 22-ft.-dia. hoist brake drums of rehabilitated mines destroyed during war. Single piece of lining is 30 in. long, 24 in. wide and 5 in. thick. Each block weighs almost 300 lb.

# JOB oddities

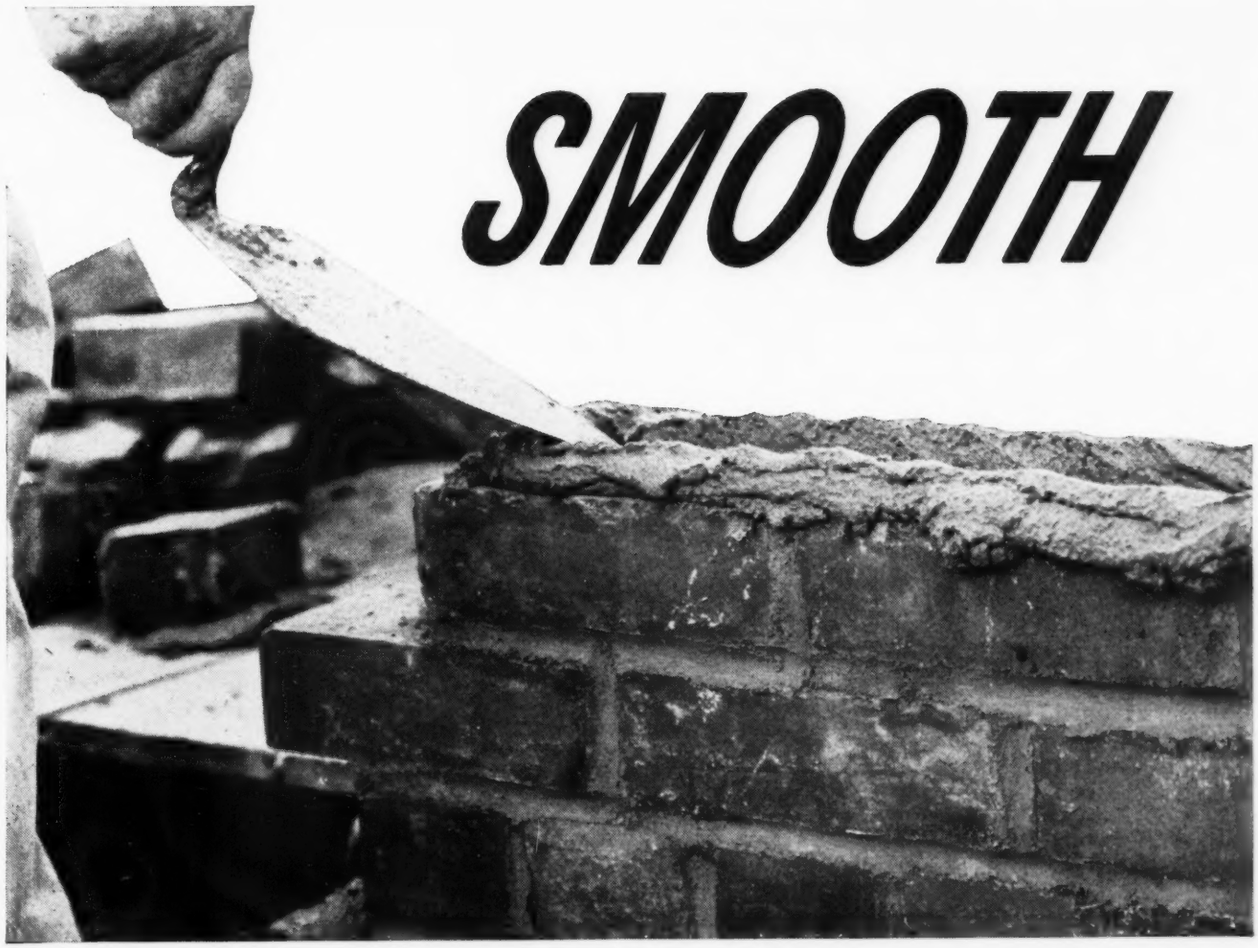


→
BUSINESS AS USUAL. Dropping a rigid-frame steel column through roof of temporary war plant doesn't seem to bother employees of Friden Calculating Machine Co., Oakland, Calif., for they know that eventually new 75x411-ft. building with Vierendeel girder roof will replace their makeshift quarters. Donald Whalen, contractor on job, is literally building new structure around and over old one, which must be kept in service as long as possible because of overcrowded conditions at plant.

McGraw-Hill San Francisco News Bureau







# SMOOTH

**ATLAS MORTAR CEMENT** rates high in plasticity. It has a fat, rich consistency. It's buttery . . . it's *smooth*. Trowels travel fast and easy in Atlas Mortar Cement. It helps masons produce a clean, workmanlike job.

High, too, is the *yield* of Atlas Mortar Cement. The large number of brick, block, tile and other units laid up with the resultant mortar may represent profitable savings to contractors, especially on large jobs.

Atlas Mortar Cement also is outstanding in all other desirable characteristics — water retention, volume change, color, strength and durability. It is backed by years of research. It complies with Federal and ASTM specifications for masonry cement.

Send for descriptive circular. Write Universal Atlas Cement Company, (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

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# CONSTRUCTION EQUIPMENT NEWS

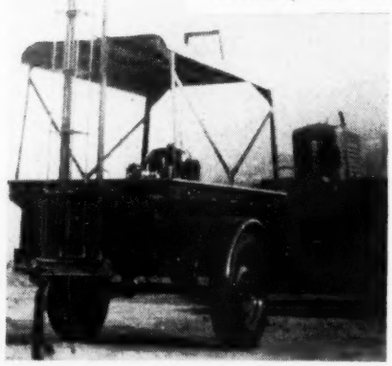
## SEPTEMBER 1947 REVIEW
### of Construction Machinery and Materials



**BULK CEMENT SPREADER**—New machine spreads bulk cement for soil-cement stabilized pavement. Features include electrically welded frame, inclosed reversing transmission, prestretched endless belt, and self-aligning bearings. Only two men are needed to operate machine. On several jobs, company claims, it has spread cement with substantially greater accuracy than required by specifications. Description literature is available.—**T. L. Smith Co., 2835 N. 42nd St., Milwaukee 10.**



**PORTABLE LIGHTING OUTFIT** — Portable 3,000-w. light tower and generator rig is mounted in half-ton all-steel Bantam utility trailers. Welded steel tower operates on hinge fastened to trailer canopy. On top of tower are two 1,500-w. clear globes in reflectors. When erected, tower is

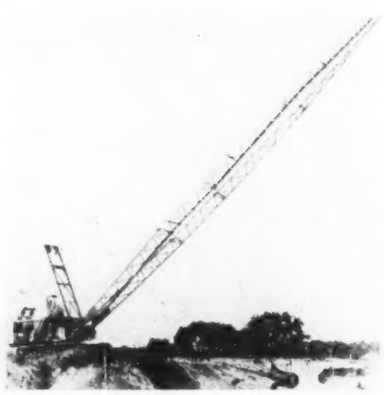


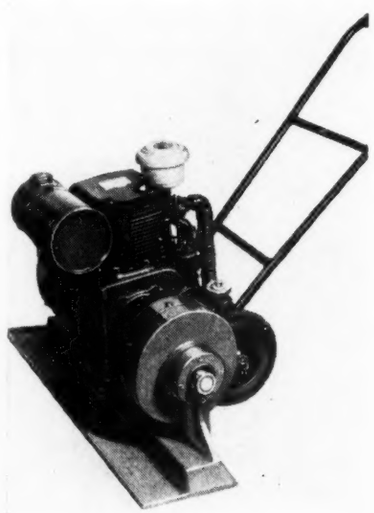
18 ft. high. When folded, it has approximately 9-ft. road clearance. Lights are pivot-mounted and have adjustable beam and spread. Welded to steel bed of trailer is Onan gasoline-powered generator with 5-gal. fuel tank and 12-v. circuit for battery charging. Gross weight that must be carried by trailer is 800 lb. —**Arrow Supply Co., Pittsburgh, Pa.**

**GAS-DRIVEN TAMPER** — Wayer Impactor is one-man unit that tamps to maximum density such materials as asphalt, concrete, resurfacing and patching materials, etc. It also packs gravel, stone, clay, etc. It is

(*Continued on page* 122)

**CRAWLER CRANE** — New Model 4500 is largest crane built by Manitowoc. Specifications are: Crawler length—25 ft.; overall crawler width—20 ft.; crawler tread width—48 in.; tail swing radius—18 ft. 5 in.; weight machine without boom—275,000 lb.; working load at 20-ft. radius—100 tons; height to top of cab—12 ft. 11⅝ in.; swing speed—2.2 rpm.; travel speed—.77 mph.; line speed hoist—210 ft. per min.; line pull hoist—41,500 lb.; line speed drag—142 ft. per min.; line pull drag—65,000 lb.; 4-yd. drag—140 ft. boom, 120 ft. radius; 3½-yd. dipper on 60 ft. shovel boom, 45-ft. sticks; 4-yd. dipper on 55-ft. shovel boom, 41-ft. sticks; 5-yd. dipper on 30-ft. shovel boom, 20-ft. sticks. Machine can be shipped on flatcars by removing crawler frames and unloaded in about 1½ days.—**Manitowoc Engineering Works, Manitowoc, Wis.**





# When

## Transmission Belting Specifications are too tough to figure out




## Your Thermoid Distributor Will Know!

He has the formula right on his desk in the big catalog of Thermoid products. By just a few simple steps, based on the specifications of the machine to be serviced, the guess work is taken out of the task of ordering the right transmission belting for any application.

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In case you should be interested in the weight of the duck and the composition of the live skim between plies. Users of transmission belting take long wear construction for granted when belting carries the Thermoid trade mark.

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# TOURNADOZER

## New high-speed, rubber-tired tool to increase dozer production

THE NEW rubber-tired Tournadozer gives you the high-rolling speed you have always wanted on your dozer work.

You get 15 m.p.h. top speed . . . and you get it in BOTH FORWARD and REVERSE.

Equally important is the constant-mesh Tournamatic transmission which gives you instantaneous selection of 4 forward and 4 reverse speeds. Just move the selector lever to the speed you want and air-actuated clutches give it to you right now. This means an extremely fast, maneuverable unit . . . quick to get in there and get going without any loss of momentum . . . and you get high-speed reverse that cuts "deadhead" time to a fraction of that required by track-type tractors.

180 h.p. C Tournadozers are now in production . . . other sizes soon. See your Le Tourneau Distributor for delivery dates . . . order NOW.

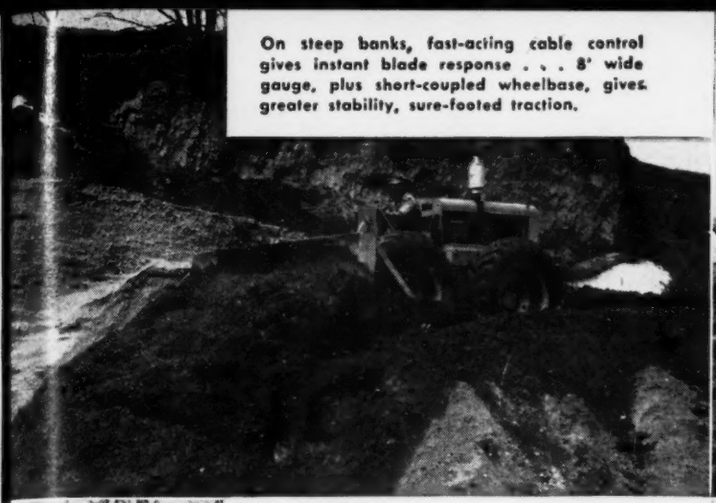


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Big 21.00 x 25, low-pressure tires, plus 4-wheel drive, give plenty of traction and flotation to move big loads in loose, abrasive sand or slippery muck.

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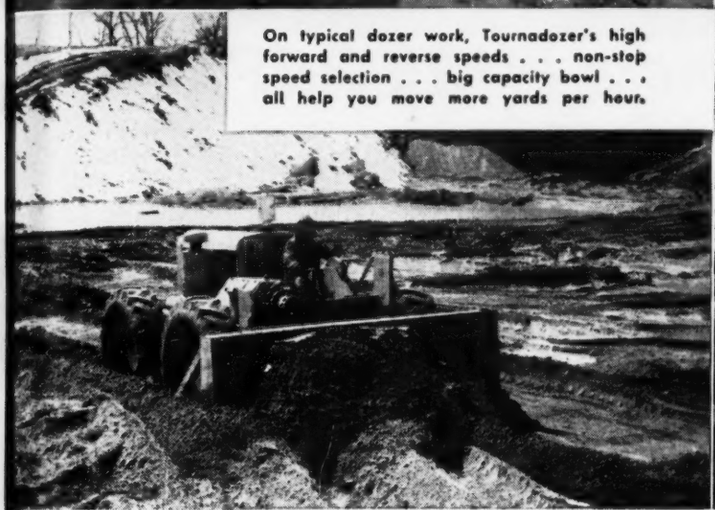
**See your Le Tourneau Distributor NOW for complete information**



On steep banks, fast-acting cable control gives instant blade response . . . 8' wide gauge, plus short-coupled wheelbase, gives greater stability, sure-footed traction.



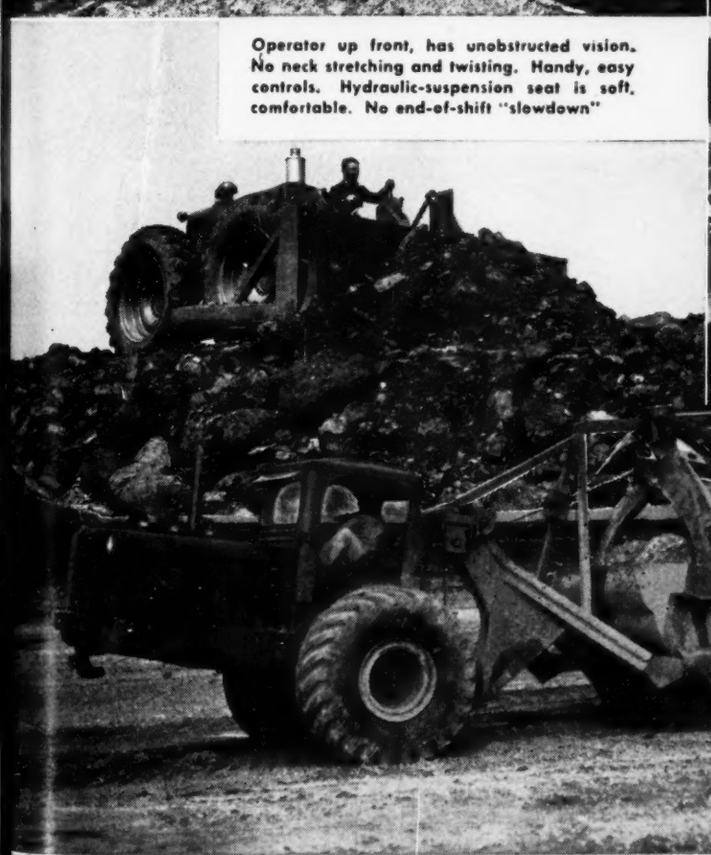
Big load capacity, ground-gripping traction and high-speed maneuverability on or off pavement increase the utility of the Tournadozer as an all around production tool.



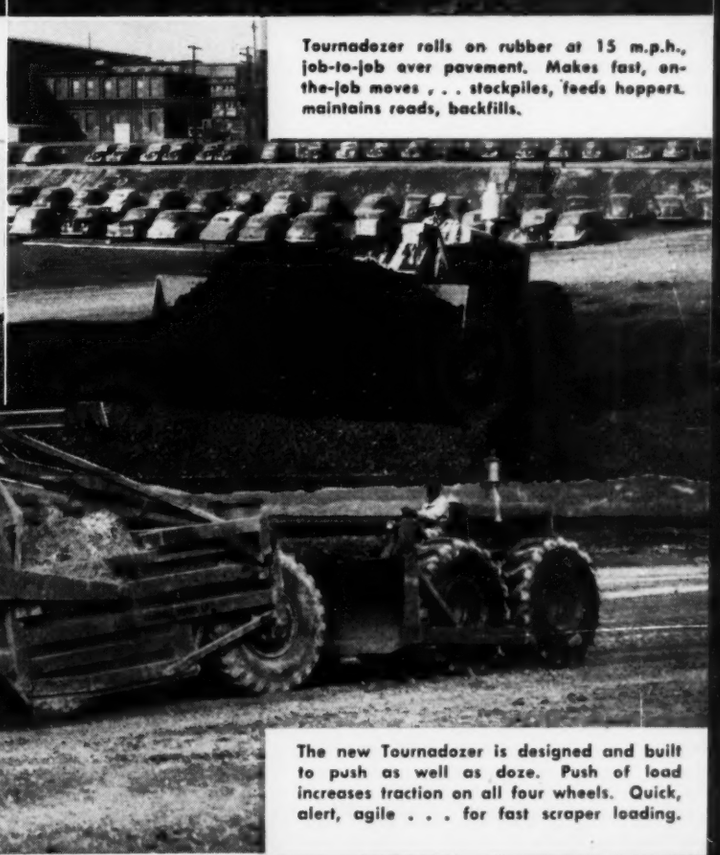
On typical dozer work, Tournadozer's high forward and reverse speeds . . . non-stop speed selection . . . big capacity bowl . . . all help you move more yards per hour.



Removing scrub brush, small trees, stripping, leveling are some of the jobs where the speed and mobility of the rubber-tired Tournadozer can give you increased production



Operator up front, has unobstructed vision. No neck stretching and twisting. Handy, easy controls. Hydraulic-suspension seat is soft, comfortable. No end-of-shift "slowdown"



Tournadozer rolls on rubber at 15 m.p.h., job-to-job over pavement. Makes fast, on-the-job moves . . . stockpiles, feeds hoppers, maintains roads, backfills.

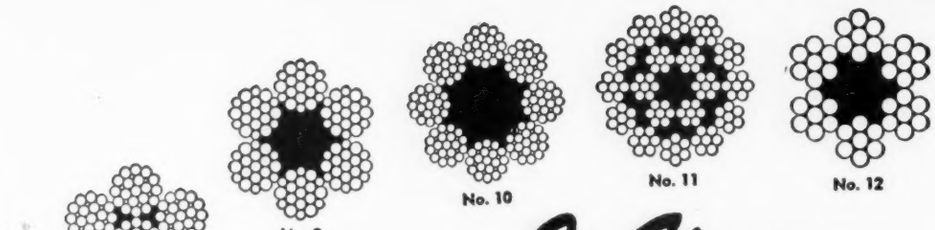
The new Tournadozer is designed and built to push as well as doze. Push of load increases traction on all four wheels. Quick, alert, agile . . . for fast scraper loading.

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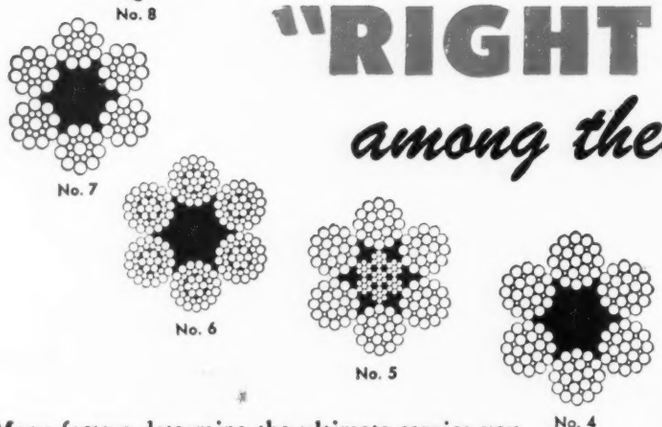
PEORIA, ILLINOIS

HIGH-SPEED RUBBER-TIRED

TOURNADOZERS



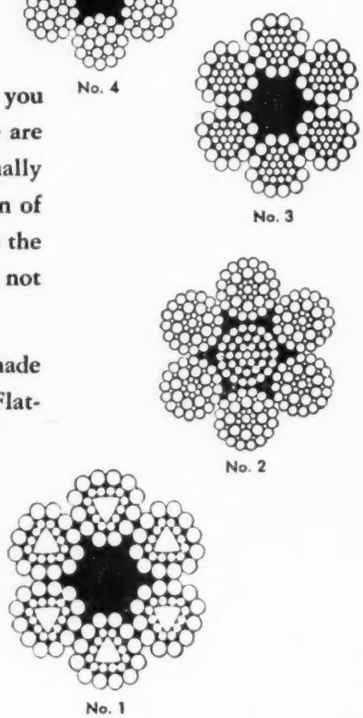

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*No. 8*—6 x 19 Round Strand—Metallic Core
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*All of these constructions are available either Preformed or Non-Preformed.*

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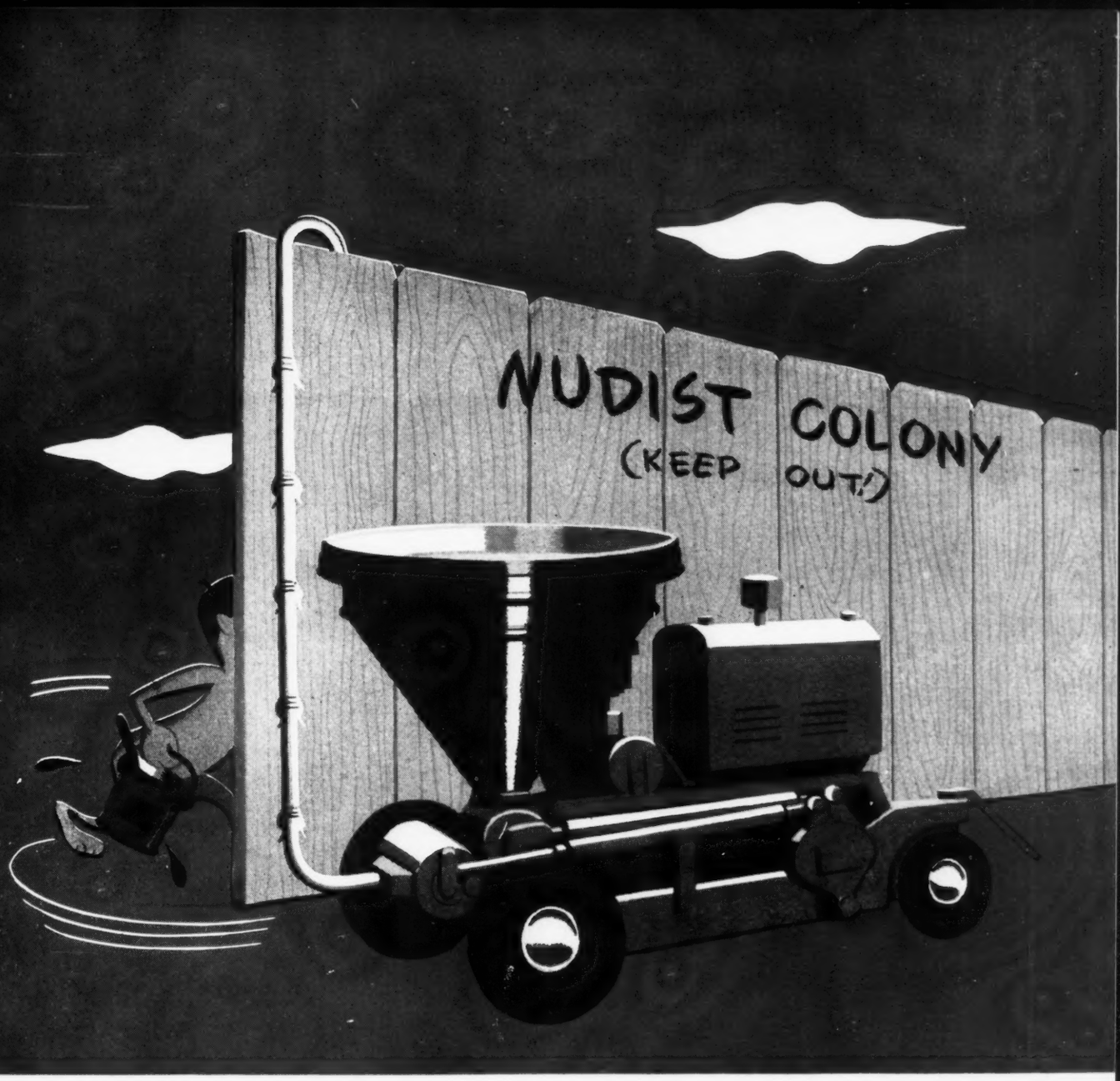
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**CHAIN BELT COMPANY *of* MILWAUKEE**

REX

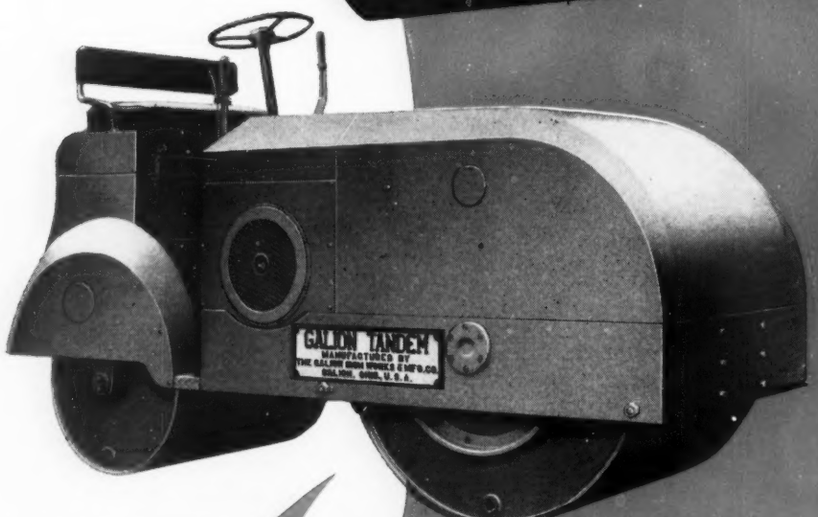
**CONSTRUCTION MACHINERY**



PUMPS PAVERS PUMPCRETES MOTO-MIXERS MIXERS

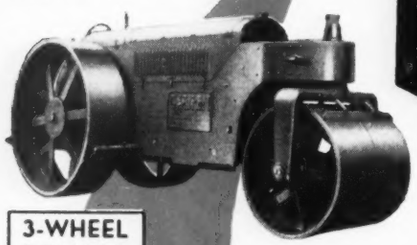
GALION

Adds a New TANDEM

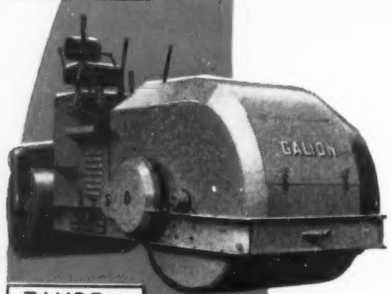



A COMPLETE LINE

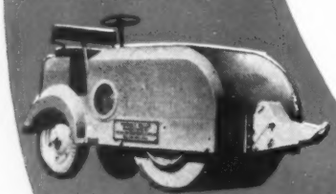
3-5 TON
A SMALL ROLLER WITH A LARGE APPLICATION



3-WHEEL ROLLERS




TANDEM ROLLERS



PORTABLE ROLLERS

This addition to the Galion line of Rollers will prove to be one of your most useful and profitable pieces of equipment.

Write for complete information.

THE GALION IRON WORKS & MFG. CO.
*General and Export Offices*
GALION, OHIO

40 YEARS OF EXPERIENCE

GALION 1907 - 1947
GRADERS · ROLLERS


(*Continued from page* 116)

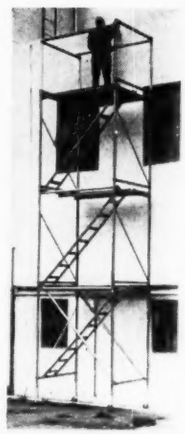
said to travel at rate of 32 ft. p[er] min. while tamping and can opera[te] in gutters and around manhol[es] where rollers cannot be used. [It] operates efficiently at below free[z]ing temperatures. Unit delive[rs] 1,500-lb. blows at rate of 2,200 p[er] minute and uses only 3 gal. of gas[o]line a day. Impactors are availab[le] in two models, No. 20 and No. 3[6]. Model No. 20 is designed for m[e]dium-heavy jobs and weighs le[ss] than 200 lbs. Model No. 36 is bui[lt] for rugged use and handles heavie[st] requirements. — **Chicago Precision Machine Co., 920 South Michigan Ave., Chicago 5, Ill.**

**TRACTOR-SCRAPER**—Unit, designated as Primemover, consists of two-wheeled, rubber-tired tractor, joined to scraper by pedestal hitch. Tractor is equipped with 225-hp. diesel engine and large Goodyear Sure Grip tires. High rate of drawbar pull in fourth gear results in



high average haul speeds when loaded. Scraper is positive forced ejection type, operated by air-actuated cable power unit, mounted on rear of tractor and deriving its power from main engine. Steering is accomplished by two double-acting hydraulic jacks. Unit is equipped with four air-actuated brakes.— **LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa.**

**SCAFFOLD**—Aluminum alloy and waterproof plywood scaffold can be erected or taken down by one man in few minutes. Each section is complete, individual unit, folding flat to 6½ in. thick, weighing 56 lb., with no nuts or bolts to fasten, no loose pieces, no heavy lifting.



Adjustable legs provide solid foundation. Scaffold is 4½ ft. wide and 6 ft. long. Each working platform is 2x6 ft. Double unit has reach for most two-story work; triple for three stories. Guard rails protect worker. — **Up-Right Scaffold Co., Bank of America Bldg., Berkeley 4, Calif.**

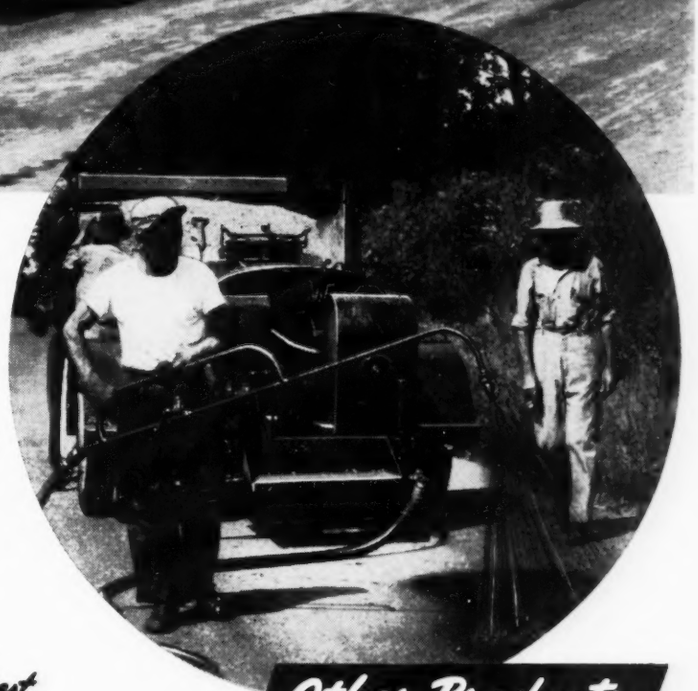
# A $1500.00 MODEL "SJ" WILL MAKE SMALL BLACK TOP JOBS *profitable!*



The efficient, low-cost Model SJ Distributor *opens up new fields of profitable black top work for contractors*—County and Township roads, City streets, Alleys, Sidewalks, Parking Lots, Playgrounds, Driveways, and Small Airports.

The 600-gallon Model SJ pictured here has a 100 G.P.M. Pump powered by an 8 h.p. engine. It handles any type of material through spray bar lengths, up to 10 feet. The two powerful burners pouring heat through 5" flues, assures fast heating. Dual lever controls all pumping operations, including hand spray.

The Model SJ can be furnished for truck mounting, or its own running gear for towing. There is a dealer in your immediate territory. Write for Catalog RS-12046.



*Built to the Highest*

**Standard**

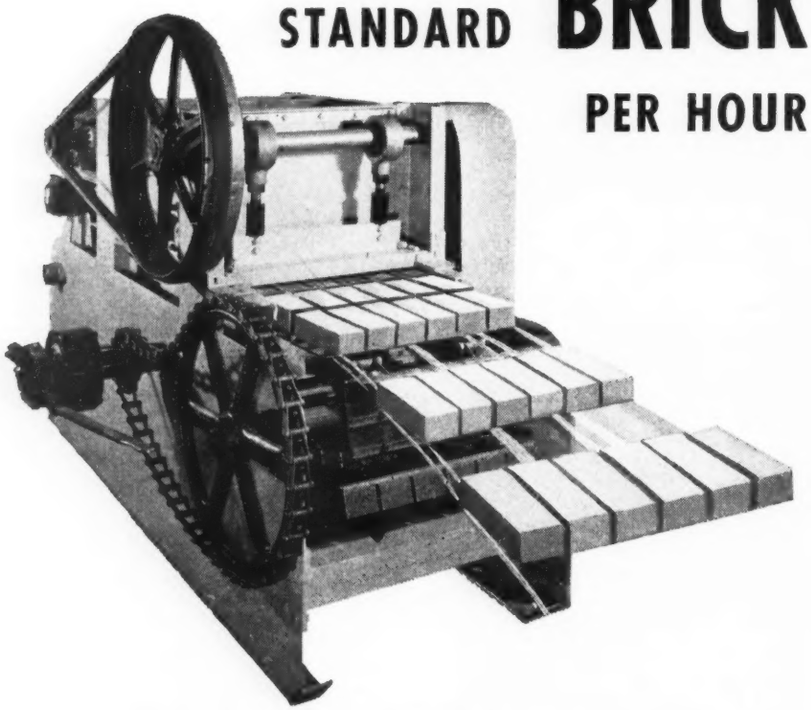
**Standard Steel Works**

**North Kansas City, Mo.**

***Other Products***

Asphalt Distributors
Tar Kettles
Burners
Street Flushers
Pouring Pots & Buckets
Other Highway Tools

UP TO 6,000 STANDARD BRICK PER HOUR



# BETTER BRICK AT LOWER COST

With a need for 20,000,000,000 building brick per year, here is an outstanding profit opportunity no enterprising supplier of building materials can afford to overlook.

The high cost of transportation and of handling brick points more and more to the necessity for the local manufacturing unit to supply the local demand.

By utilizing inexpensive or plentiful local aggregates plus cement, BRICKMASTER enables you to produce your own plain or decorative brick at the rate of 6,000 per hour.

Those who are using BRICKMASTER and are supplying the need for stronger, more accurate and less expensive brick are making handsome profits.

SOME TERRITORIES AVAILABLE FOR DISTRIBUTORS

WRITE FOR ILLUSTRATED BROCHURE

Brickmaster INC.

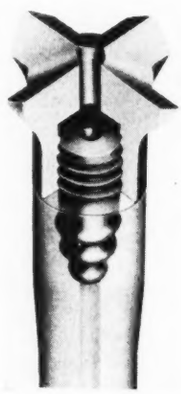
115 Broadway, New York 4, N. Y.


**EARTHMOVING EQUIPMENT**—New 35-ton-capacity Model B Tournapull, powered by 225-hp. diesel engine, is available for use with two sizes of scrapers—E-35 Carryall, having 35-ton (26.1-yd., struck) capacity, or 25-ton E-25 Carryall (16.5-yd., struck capacity). Unit has four speeds forward, two in reverse and travels up to 15 mph. New developments in its design include individual electric motors that



steer Tournapull and operate scraper to eliminate power control unit, Tournamatic constant-mesh transmission and Tournamatic differential. Overall specifications of B Tournapull with E-35 Carryall are: Length 37½ ft.; height 11 ft. 3 in.; width 11 ft. 7 in.; wheelbase 23 ft. 8½ in.; minimum turning radius 33 ft.; and empty weight 20¼ tons. Unit can make 90 deg. turn in either direction. Maker claims that under ideal conditions Model B with 35-ton Carryall is capable of moving 69 yd. per hr. on 10,000-ft. one-way haul and 347 yd. on 500 ft. haul.—**R. G. Letourneau, Inc., Peoria, Ill.**

**STUD - TYPE JACKBIT**—New bit has carefully worked out wing curves that enable it to retain new bit proportions through many resharpenings. Resulting small gage loss permits use of successive bits with reductions in diameter of 1/16 in. or less, which makes it possible to start holes with smaller bits than those previously used and still bottom them at same size as before. Jackstud, which connects bit to drill rod, is made of high-grade, carbonized alloy steel selected to withstand service. One end, cone-shaped and deeply furrowed, is driven while cold into heated end of drill rod. Driving operation can be readily performed with drill steel sharpener. — **Ingersoll - Rand Co., Phillipsburg, N. J.**



**ELECTRODE**—No. 13 electrode is designed to simplify welding light-gage mild steel. Low penetration, ease of handling and steady uniform transfer of metal help make

(*Continued on page* 126)

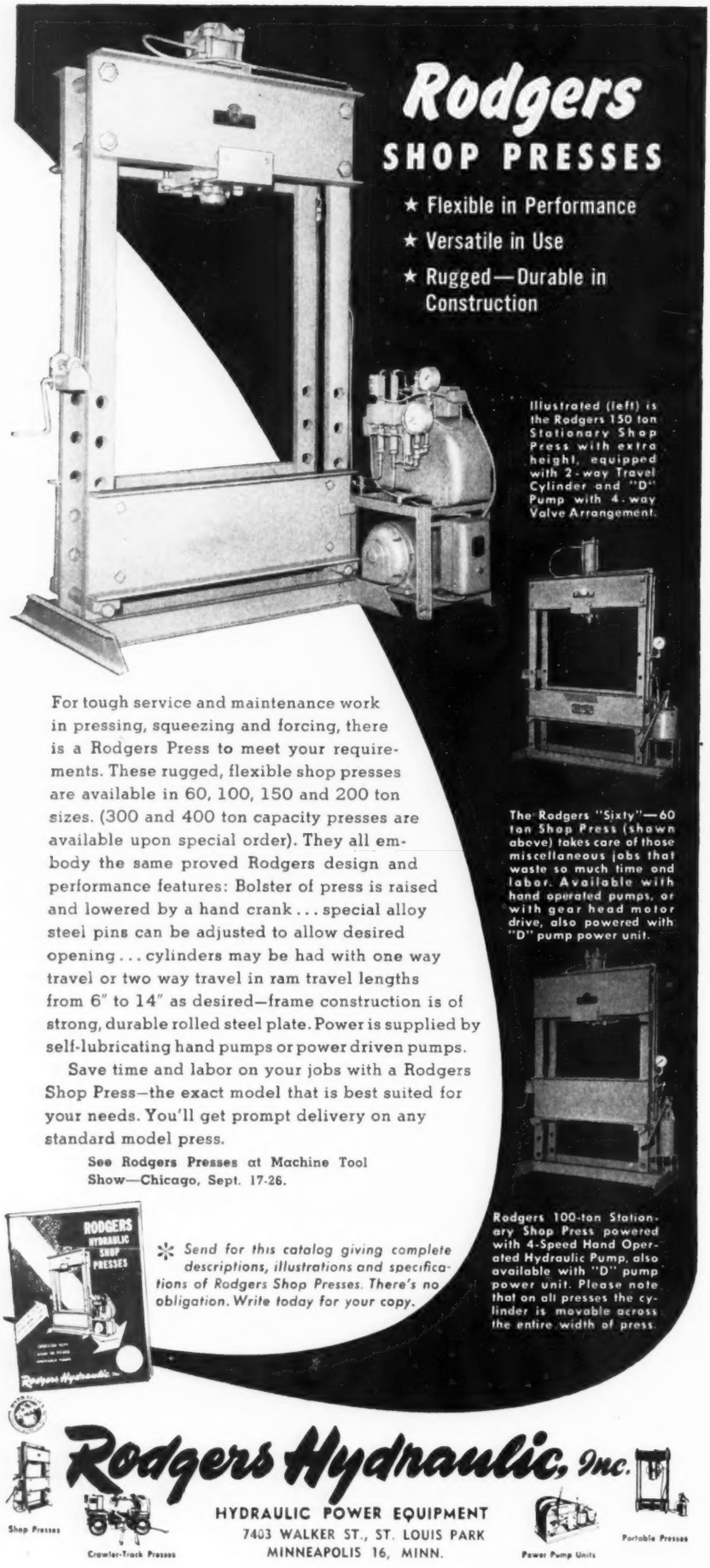



# MORE ENGINES . . . MORE ASSURANCE

*More engines* . . . because Cummins has completed a $3,000,000.00 postwar expansion program, increasing manufacturing space 44.8%.

*More assurance* . . . because Cummins dealers have also increased floor space . . . enlarged parts stocks . . . added special tools for rebuilding engines to factory standards, thus assuring Cummins Dependable Diesel owners of continued profits on their "premium" jobs.

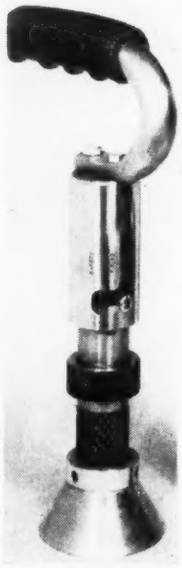
**CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA**





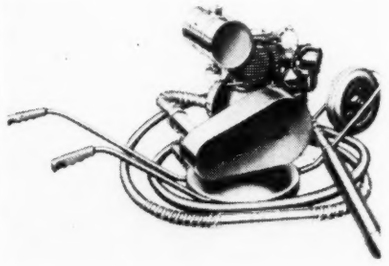
(*Continued from page* 124)

it extra fast for out of position welding. It is designed for use with d.c. straight polarity or a.c. and is available in 1/16, 5/64, 3/32, and ⅛-in. diameters.—**Hobart Brothers Co., Hobart Square, Troy, Ohio.**

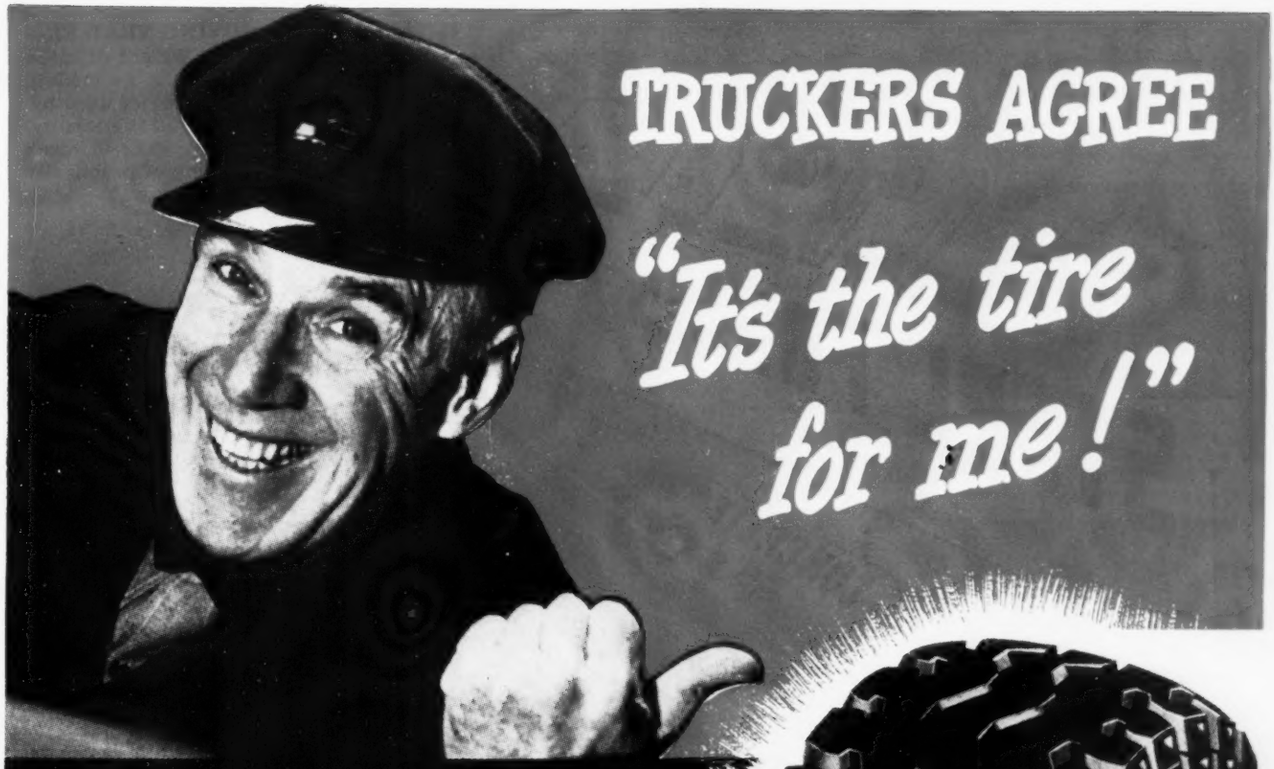


**HAND TOOL** — Utilizing explosive power principle of operation, Tempotool can speed and simplify installation operations in attaching steel to steel, concrete, brick or mortar. Source of power is provided by exploding cartridge in inclosed chamber or breach. Explosion drives pin or stud through into steel with short barrel and such force that stud is firmly set in steel and will resist direct pull up to 20,000 lb. In addition to drive pins, both male and female threaded studs are available to accommodate nuts or threaded rods. Tool is available in two models: 22 for light fastening operations and 38 for heavier jobs.—**Tempo Products Co., 402 Perry-Payne Bldg., Cleveland, Ohio.**

**CONCRETE VIBRATOR**—Powered by Model AKS Wisconsin 4 hp. air-cooled engine, this vibrator, specially built for heavy-duty work, has automatic clutch which engages at engine speed of 1700 rpm. Rugged flexible shaft has ½-in. core of stranded music wire. Vibrating



head is 2⅜-in. dia. by 18½ in long. Engine swivels independently of stand, which has wheelbarrow handles and rubber puncture-proof tire. Jack shaft is equipped with two double-row radial thrust ball bearings. Vibrating speed is 8000 rpm. Complete unit with 21-ft. flexible shaft weighs 200 lb.—**Aristo Power Tools, Inc., 601 W. Washington Blvd., Chicago 6, Ill.**




**NEW RHINO-FLEX CONSTRUCTION MAKES POSSIBLE THE TOUGHEST TRUCK TIRE EVER BUILT BY ARMSTRONG!**



**You get cooler running—longer mileage—greater safety with Armstrong *Rhino-Flex* Truck Tires—made with rayon cord!**

TRUCKERS know top tire value when they see it—that's why more and more truckers every day are changing to Armstrong.

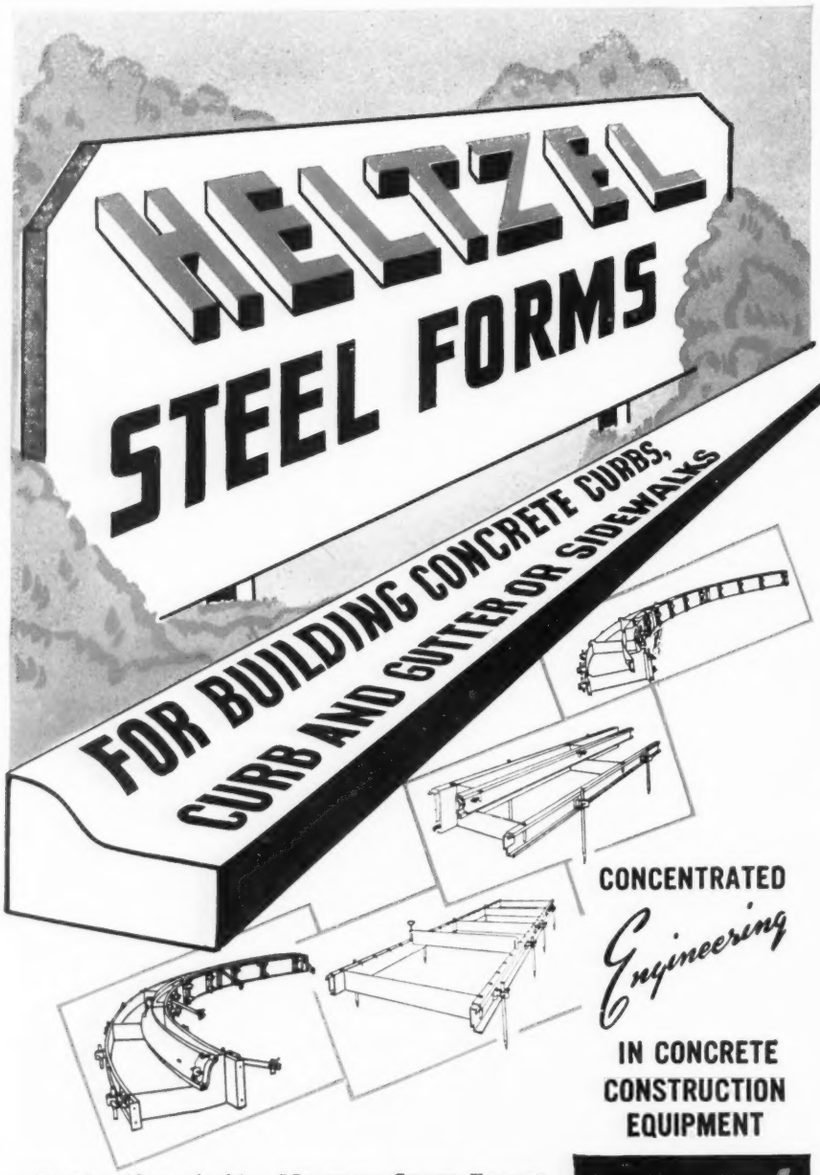
No other truck tire offers the toughness—the safety—the longer mileage made possible by Armstrong's exclusive *Rhino-Flex* construction.

Roll your trucks on Armstrongs—get more miles per tire dollar. See your Armstrong dealer today!

# ARMSTRONG Rhino-Flex TIRES

*Since 1912, a trusted name in tires!*

Plants: West Haven, Conn. • Natchez, Miss. • Des Moines, Iowa • General Sales Offices—450 Elm Street, West Haven 16, Conn




CONCENTRATED *Engineering* IN CONCRETE CONSTRUCTION EQUIPMENT

Rigid, self-interlocking HELTZEL STEEL FORMS make the setting and stripping job much easier and faster. No warping, no chipping, no replacements.

No matter how complicated or individual your specifications, Heltzel can furnish forms for your work. Standard Heltzel forms include: Lip Curb; Header; Integral Curb; Curb and Gutter; Rigid Radius or Flexible; Dowel Joint Curb; Highway and Airport Forms.

**Engineering Data Mailed Promptly**

Heltzel Steel Form & Iron Company, Warren, Ohio

**Send me the following:**

[ ] B-19 Steel Highway and Airport Forms
[ ] B-19A Steel Dual Duty Airport Forms
[ ] A-20 Steel Forms for Curbs or Curb and Gutters or Sidewalks.

Name_____

Address_____

City_____ State_____

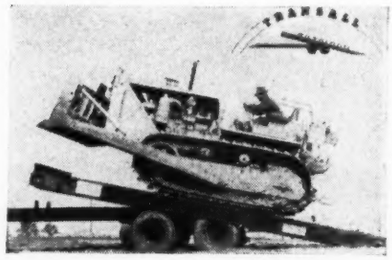
*(Type of construction usually engaged in)*

**HELTZEL** STEEL FORM & IRON CO. WARREN, OHIO · U. S. A.

*Heltzel* BUILDS IT BETTER

- BINS, Portable and Stationary
- CEMENT BINS, Portable and Stationary
- CENTRAL MIXING PLANTS
- BATCHERS (for batch trucks or truck mixers with automatic dial or beam scale)
- BITUMINOUS PAVING FORMS
- ROAD FORMS (with lip curb and integral curb attachments)
- CURB FORMS
- CURB AND GUTTER FORMS
- SIDEWALK FORMS
- SEWER AND TUNNEL FORMS
- CONCRETE BUCKETS
- SUBGRADE TESTERS
- SUBGRADE PLANERS
- TOOL BOXES
- FINISHING TOOLS FOR CONCRETE ROADS


**EQUIPMENT MOVING TRAILER**—Major advantages of Wright tilt deck trailer, whose deck acts as loading ramp, are: Safety, ease of loading, one-man operation and versatility. The 25-ton capacity, 8x23-ft. deck makes possible moving of practically




all contractors' equipment. Trailer is ruggedly built. It has no swaying springs, but rubber cushioned action on specially designed dual axle walking action eliminates dangerous side sway. Moving is possible under all road conditions.—**Wright Trailer Co., 117 E. Colorado Blvd., Pasadena 1, Calif.**

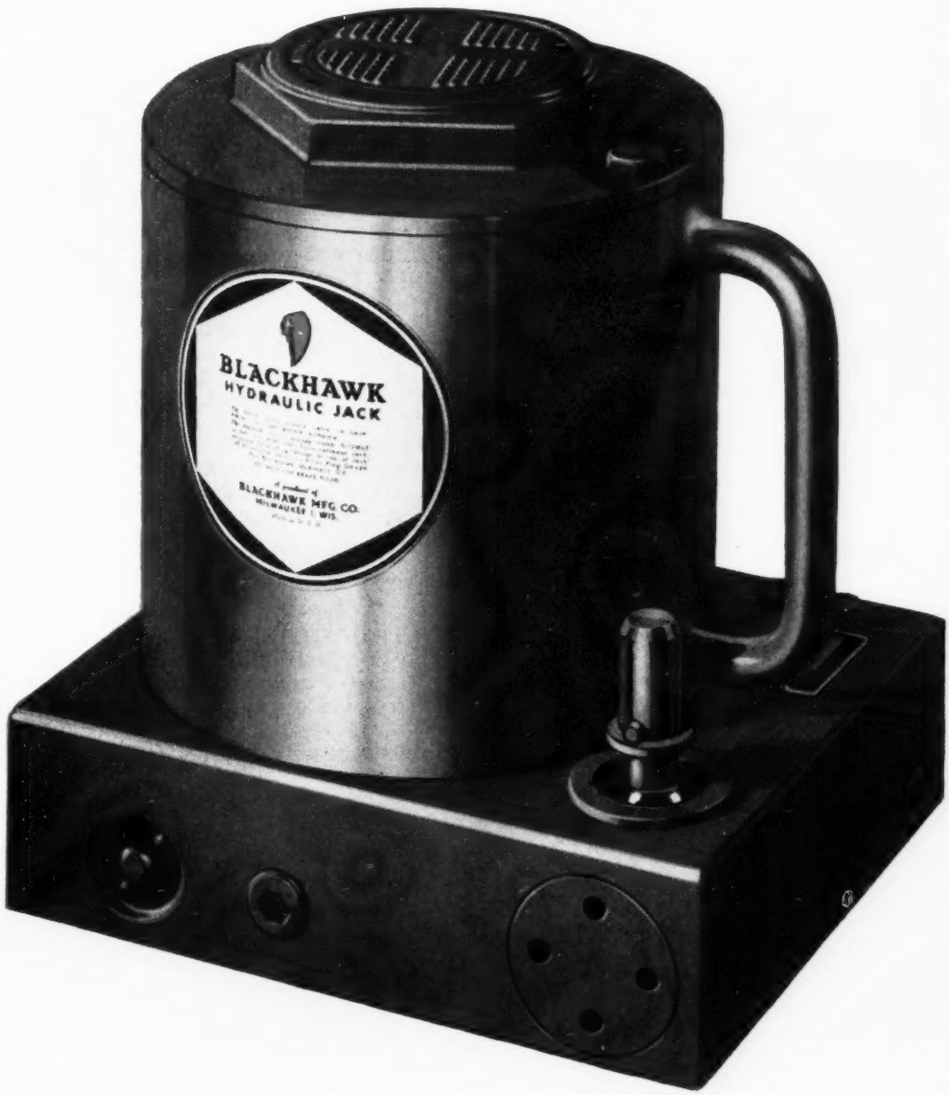
**SAFETY STICKERS**—To remind a workman like a conscience—just when he is about to start job in way that is not safe—self-sticking safety stickers, known as SAFE-T-STIKRS, are 2x4 in. in size, colored and worded like miniature billboard to demand attention and insure reading. Self-sticking, they are easy to press in place, easy to peel off clean and replace with fresh reminders to keep their "new sign" effect. — **The Howard Co., 15811 Denker Ave., Gardena, Calif.**

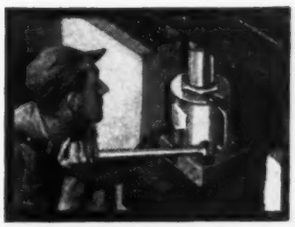


**WOOD BORING TOOLS** — Revolutionary duet in wood boring tools, Circo E-Z-Out boring tool and Circo E-Z-Out combination boring and counter boring tool, feature high speed tool steel cutting blades that have no teeth to break off. Both tools also eliminate hazard of heavy, flying chips. Both tools can be used with standard electric or air-power drill for any heavy industrial wood-boring operation. Each consists of specially designed pilot drill and four high speed tool steel cutting blades with extra thickness for extra strength. Tapered cutting edges remain sharp longer and are easily and quickly resharpened without special tools. — **Circo Tool Co., Milwaukee, Wis.**

# *New*... built for Construction

**An *Exclusive* combination of Benefits are now Created for You by These New Heavy-Duty Jacks!**

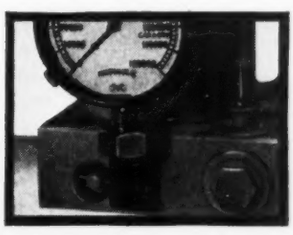


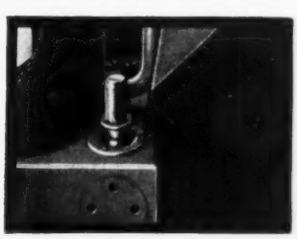
**PATENTED DOUBLE PUMP**—all in ONE unit! Speed pump provides fast load-contact—powerful load pump cuts in automatically! No shifting handle or double-yoking as with separate pumps.



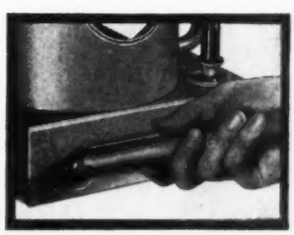
**ALL-DIRECTIONAL OPERATION**—Full power and travel at any angle, vertical to horizontal. Handle forms positive side-rest for horizontal use.



**GAUGE EQUIPPED** — Base is tapped for hook-up of gauge to show amount of pressure exerted — for measuring or testing applications.



**PUMP BEAM PROTECTION** is provided by handle and base. Pump is concealed. Beam is protectively enclosed at entry point to base.



**SUPER STRONG BASE**—machined from single piece of non-porous steel. Release valve is recessed to prevent accidental lowering and breakage.

CHECK these cost-cutting features of the new 30-ton FB-11 and the 50-ton GB-11. They bring you outstanding new jack performance never before known in construction and maintenance work. (Other Blackhawk models include 3, 5, 8, 12, and 20-ton sizes.) See your Blackhawk Industrial Supply Distributor for full information on these new Jacks.

***A Product of* BLACKHAWK MFG. COMPANY, Dept. J-2797, Milwaukee 1, Wisconsin**

*Always Specify*

# BLACKHAWK
## HYDRAULIC JACKS

# What Price Freezing?



**PROTECT**
**AGAINST TIME LOSS BY:**

**SPACE HEATING** of temporary buildings, storage sheds, repair shops, buildings under construction.

**PREHEATING** engines and all kinds of mechanical equipment.

**SPOT HEATING** of materials, workmen, machinery, storage tanks, tools.

**THAWING** frozen areas and machinery, wheels, gears, transmissions, caterpillars, etc.

**DRYING** and curing of materials, plaster, paint, mortar, concrete, etc.

**VENTILATING** and heating of manholes, tunnels, box cars, ship holds, confined areas of all kinds.

***KEEP GOING THIS WINTER WITH HERMAN NELSON PORTABLE HEATERS!***

Let it Snow! Let it Freeze! Here's quick, clean, safe HEAT . . . to combat damp and icy weather on any job. Herman Nelson Portable Heaters protect men, machinery and materials. It's protection you can't afford to overlook — protection against time loss! Why gamble needlessly when, with Herman Nelson Portable Heaters at work, you can get HEAT, lots of it — where you want it, when you want it — without waste. This efficient unit is no bigger than a kitchen stove, yet produces enough heat for three ordinary 5-room houses. And it's all done without smoke, soot or open flame.

***Write for Interesting Free Booklet on "Cost Control"***

**THE HERMAN NELSON CORPORATION** MOLINE ILLINOIS

***SINCE 1906 MANUFACTURERS OF QUALITY HEATING AND VENTILATING PRODUCTS***

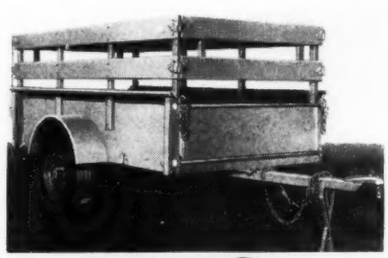

**WHEEL-TYPE TRACTOR** — DW10 tractor has power output of 115-hp. at 1,800 rpm. Equipped with new No. 10 scraper, it offers outstanding digging and leveling characteristics. Coupled with matching wagon, it makes possible speedy handling of many types of materials. No. 10 scraper has heaped capacity (at 1.1

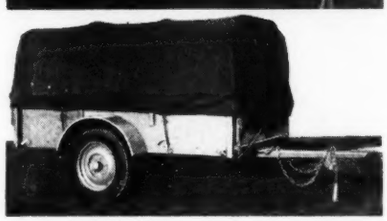


slope) of 11 cu. yd. New No. 21 rear-mounted, double-drum cable control is matched to requirements of this new tractor and scraper. Top speed of tractor with loaded wagon or scraper is 18.8 mph. with standard transmission and 21.6 or 24.5 with optional drives, when fitted with 21.00 x 25 tires.—**Caterpillar Tractor Co., Peoria 8, Ill.**

**MIXED FLOW TYPE PUMP**—New pump embodies essential characteristics of both centrifugal and axial flow pumps, including ability to move liquids against maximum heads with minimum submergence, adaptation to shallower sumps, utilization of higher speed motors against medium heads and installation in minimum space.—**Peerless Pump Division, Food Machinery Corp., 301 W. Ave. 26, Los Angeles, Calif.**

**TWO-WHEEL TRAILER** — Cobey two-wheel trailer is made in two sizes—6 and 8 ft. long. Both sizes are 4 ft. wide and have 17½-in. flared steel sides. Three body extension units are available for 8-ft. size. These include 22-in. low stake

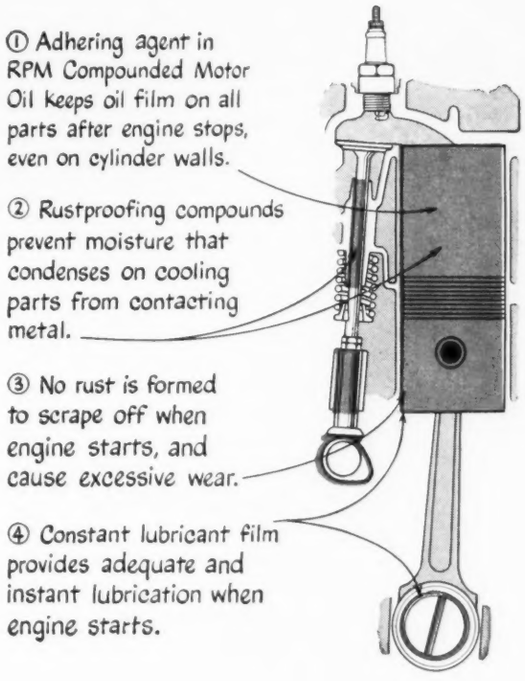




rack, 46-in. high stock rack (upper photo) and bow top with tarpaulin cover (lower photo). End gates are provided on both front and rear which swing from top as well as bottom. Floor is made of 14-gage ribbed steel, reinforced underneath with heavy cross-bolsters.—**Perfection Steel Body Co., Galion, Ohio.**

# STANDARD ENGINEERS NOTEBOOK



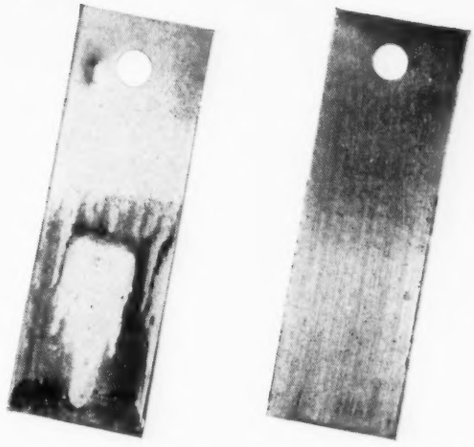



① Adhering agent in RPM Compounded Motor Oil keeps oil film on all parts after engine stops, even on cylinder walls.

② Rustproofing compounds prevent moisture that condenses on cooling parts from contacting metal.

③ No rust is formed to scrape off when engine starts, and cause excessive wear.

④ Constant lubricant film provides adequate and instant lubrication when engine starts.



This actual photograph shows how one HIGH-QUALITY MOTOR OIL "peeled" off almost all of this test strip of steel when it was placed in corrosive-moisture conditions similar to those in a cooling engine. The oil concentrated at one spot and the unprotected surface quickly rusted.

RPM COMPOUNDED MOTOR OIL kept this strip bright and shiny, completely sealed against rusting, when it was exposed to the same conditions. "RPM" compounds keep a constant rust-proofing lubricant film on engine parts at all times, whether they are idle or moving.

## How RPM Motor Oil Rust-Proofs As It Lubricates

Rusting, caused by corrosive moisture, is the greatest source of wear in automotive engines (85%, according to some engineers). It can be controlled by using RPM Compounded Motor Oil.

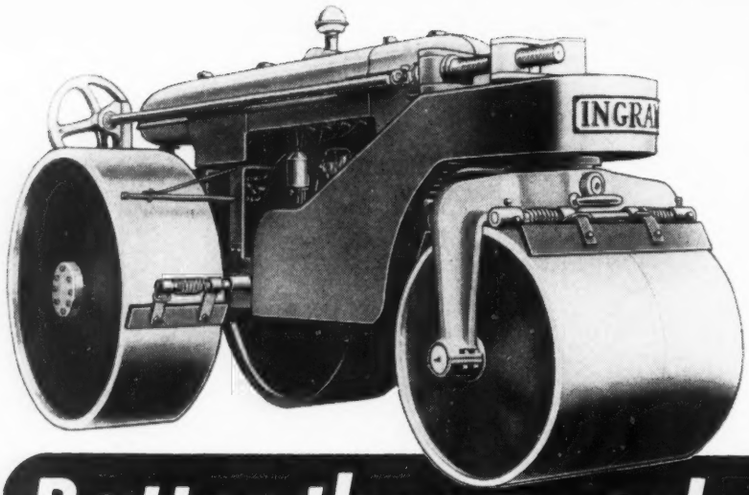
Additional compounding for "RPM," perfected by Standard of California scientists, provides a rust-proofing lubricant film on internal engine surfaces. The heaviest moisture condensation in idle or cold-running engines will not cut through it.

Other compounds in RPM Motor Oil give it adherent qualities so the film stays on parts at all times. They also loosen and remove gum and lacquer, lubricate hot spots, resist sludge formation, bearing corrosion and stop foaming.

Trademark "RPM" Reg. U. S. Pat. Off.

For additional information and the name of your nearest Distributor, write Standard of California, 225 Bush Street, San Francisco 20, Calif.; The California Oil Company, 30 Rockefeller Plaza, New York 20, N. Y.; The California Company, 17th and Stout Streets, Denver 1, Colo.; Standard Oil Company of Texas, El Paso, Texas.

**FOR EVERY NEED A STANDARD OF CALIFORNIA JOB-PROVED PRODUCT**



# Better than ever!

## INGRAM MODEL 45 NOW HAS VARIABLE WEIGHT

It's another Ingram improvement—variable weight for a lightweight, high-speed roller. Hollow wheels on the Ingram Model 45 allow weight to be increased from four to five tons. But that's only ONE reason for the tremendous popularity of Ingram Model 45. Check these other features, too—

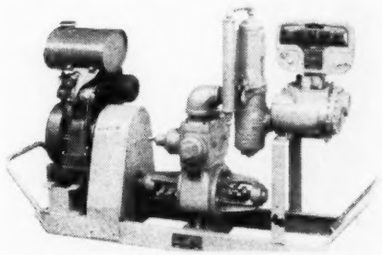
- ☑ 87-in. Wheelbase for Operating Ease
- ☑ 65-in. Rolling Width—2½-in. Overlap
- ☑ 32-HP International Gasoline Engine
- ☑ 5 Forward Speeds—2 to 12 MPH
- ☑ Positive Control Manual Steering

And every Ingram Roller—4 to 12 tons—is equipped with self starter and sprinklers — AT NO EXTRA CHARGE. See your Ingram distributor now—learn how the Ingram saves on maintenance costs—and why operators prefer the easy handling Ingram.

# INGRAM ROLLERS

ACME WIRE & IRON WORKS • SAN ANTONIO, TEXAS

**PUMPING UNIT** — Portable fuel transfer pumping unit, capacity 100 g.p.m., includes lightweight engine, rotary pump, air eliminator and metering device mounted on rack.



Pump is driven by 6-hp. Salsbury single-cylinder, air-colled 4-cycle gasoline engine. It is designed for fueling and defueling trucks, tractors, and other construction equipment.—**Harman Equipment Co., Los Angeles, Calif.**

**STEEL BUILDINGS**—Quonsets are now available in 36-ft. widths to meet demands from rural areas. Building may rest on foundation at grade or may be placed on masonry wall. Stran-Steel floor joists with bridging can be provided to enable application of concrete or wood planking floor. End walls, steel windows and doors can be provided. Production of Quonsets in 20-, 24- and 40-ft. width, and wider multi-arches, will continue.—**Great Lakes Steel Corp., Penobscot Bldg., Detroit, Mich.**

**WATER CARRIER** — New portable water carrier is made of stainless steel and is well-insulated to keep water cool for many hours in field. It has recessed faucet which turns off automatically when released. Lug



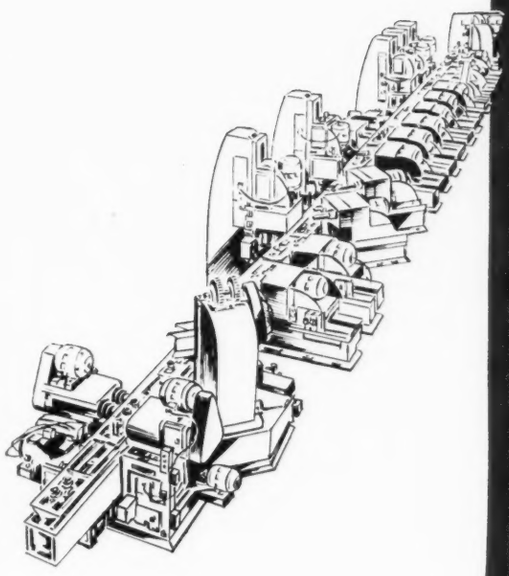
is provided for single or double unit Vortex paper cup dispenser. Double unit dispenser has receptacle for used cups. Capacity is approximately 4 gal.; size 18 in. high, 15 in. long, 8 in. wide. Two adjustable carrying straps are provided.—**Dixie Cup Co., Easton, Pa.**

# In More Than 30 Booths at the MACHINE TOOL SHOW...




YOU WILL SEE THE

# Many Applications OF VICKERS HYDRAULIC CONTROLS



**Machine Tool Builders use Vickers Hydraulic Equipment to meet the ever increasing demand for Higher Production Rates, Reduced Parts Costs and Improved Product Quality**

Vickers Hydraulic Controls have played a significant part in the development of many modern machine tools because they provide the designer with opportunities for improvement not available by other methods. From simple machine tools to completely automatic processing machines, Vickers Hydraulic Equipment makes good machines even better.

You can see the many advantages which Vickers Hydraulic Controls have contributed to modern machine tools in more than 30 booths at the Machine Tool Show—booths of machine tool builders who are displaying Vickers Hydraulic equipped machines of many types. It will be very much worth your while to inspect these machines.

To make it easy for you to find these exhibits, we have prepared a booklet illustrating the machines, listing the names of the manufacturers and showing their booth locations. Stop at Vickers Booth No. 228 for your copy.

## BOOTH 228

**Here you will see the latest developments in Vickers Hydraulic Controls. Vickers Application Engineers will be glad to discuss your individual problems.**

**VICKERS Incorporated**

*DIVISION OF THE SPERRY CORPORATION*

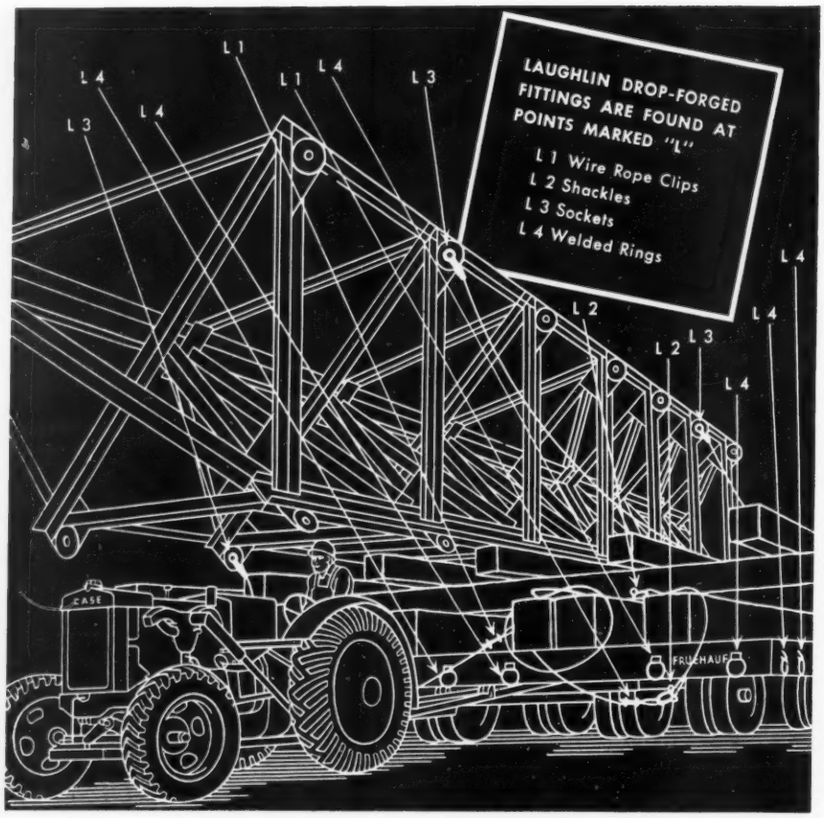
**1494 OAKMAN BLVD. • DETROIT 32, MICHIGAN**

*Vickers Engineering Offices:* ATLANTA • CHICAGO • CINCINNATI • CLEVELAND
DETROIT • LOS ANGELES • MIAMI • NEWARK • PHILADELPHIA • ROCKFORD
ROCHESTER • SEATTLE • ST. LOUIS • TULSA • WASHINGTON • WORCESTER

3241

*ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921*

# FOR SAFER, LOWER-COST TRANSIT




For lashing structures in transit, for construction machinery or in hoisting, Laughlin wire rope and chain fittings combine maximum safety with smoother, more economical handling:

*By avoiding accidents.* Laughlin fittings, such as "Fist-Grip" Safety Clips, "Missing Links" and Safety Hooks, give you more safety features than any other line.

*By reducing purchase price.* You'll find that fittings for practically every purpose are *standard* with Laughlin. No delay or extra expense in ordering.

*By giving more economical service.* Laughlin fittings are *drop-forged* . . . last longer. And 3 Laughlin "Fist-Grip" Clips do the work of 4 ordinary U-bolts.

Wherever you use wire rope or chain, Laughlin quality fittings will bring you many advantages worth knowing about fully. For a complete catalog write to Dept. 1, THE THOMAS LAUGHLIN COMPANY, Portland 6, Maine. Laughlin fittings are distributed through mill, mine and oil field supply houses.

**LAUGHLIN**

**THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS**

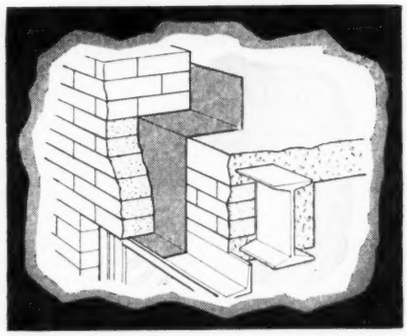


**CLEANING COMPOUND**—New industrial cleaning compound, Kelite 555, is fast and safe degreaser having penetrating and softening properties that remove carbon deposits by cold immersion. It is recommended for all metals and is especially efficient in cleaning automotive and diesel engine parts, fuel pumps, carburetors, filter screens, shock absorbers and brake parts. Containing no phenolic compounds, product has high flash point and is completely safe for operator.—**Kelite Products, Inc., Los Angeles, Calif.**

**LEVEL** — Brunson builder's level (dumpy type) is built for hard use. Everything is inclosed against dust, dirt and moisture. Internal focus prevents looseness and wear and keeps dirt out. Removable trivet points allow level to be used on any surface. It is mounted on ball bearings, which are permanently lubricated and are completely sealed against dust. Clamps and screens are also inclosed in body casting. It has unusually large circle for easy reading. Optics are specially designed to give unusual brilliancy, so that observations can be made in unlighted buildings.—**Brunson Instrument Co., 1405-7 Walnut, Kansas City, Mo.**

# USE PURE COPPER

## *at one-fifth the normal cost*



SPANDREL BEAM WATERPROOFING and other concealed flashing and damp-proofing applications are easier, faster, cost less when you use Copper Armored Sisalkraft! 100% impervious to moisture . . . lightweight, will not kink, break or tear. Now available in copper weights of one, two and three oz. per sq. ft. up to 60" widths. Write for information and free sample.

**COPPER ARMORED SISALKRAFT**

**The SISALKRAFT Co.**

205 W. Wacker Dr., Dept. CM, Chicago 6, Ill.

# Here's the answer to All your aggregate producing problems




One to six different sizes of finished products in one operation! 25 to 250 tons per hour or even more! That's the kind of production you get from a Cedarapids Unitized Plant.

Four basic units make up a complete Unitized Plant: (1) a portable primary jaw crusher; (2) a scalping unit consisting of a jaw crusher and vibrating screen; (3) a secondary unit consisting of a vibrating screen and a roll crusher, hammermill, twin jaw crusher or cone crusher; and (4) a wet or dry screening unit. These four units may be used in any combination depending upon the pit or quarry conditions and the finished products desired. For example, a primary and a hammermill secondary in a limestone quarry will produce roadstone and agricultural limestone. A scalping unit and a roll crusher secondary will produce crushed gravel in a pit where oversize is relatively small. A dozen other combinations can be set up for producing aggregate that will meet any specifications. A wide range of sizes of each unit makes it possible to have a plant with almost any desired capacity.

When you buy a crushing plant—buy the best—buy Cedarapids. Ask your nearest Cedarapids dealer for details on the Unitized Plant.

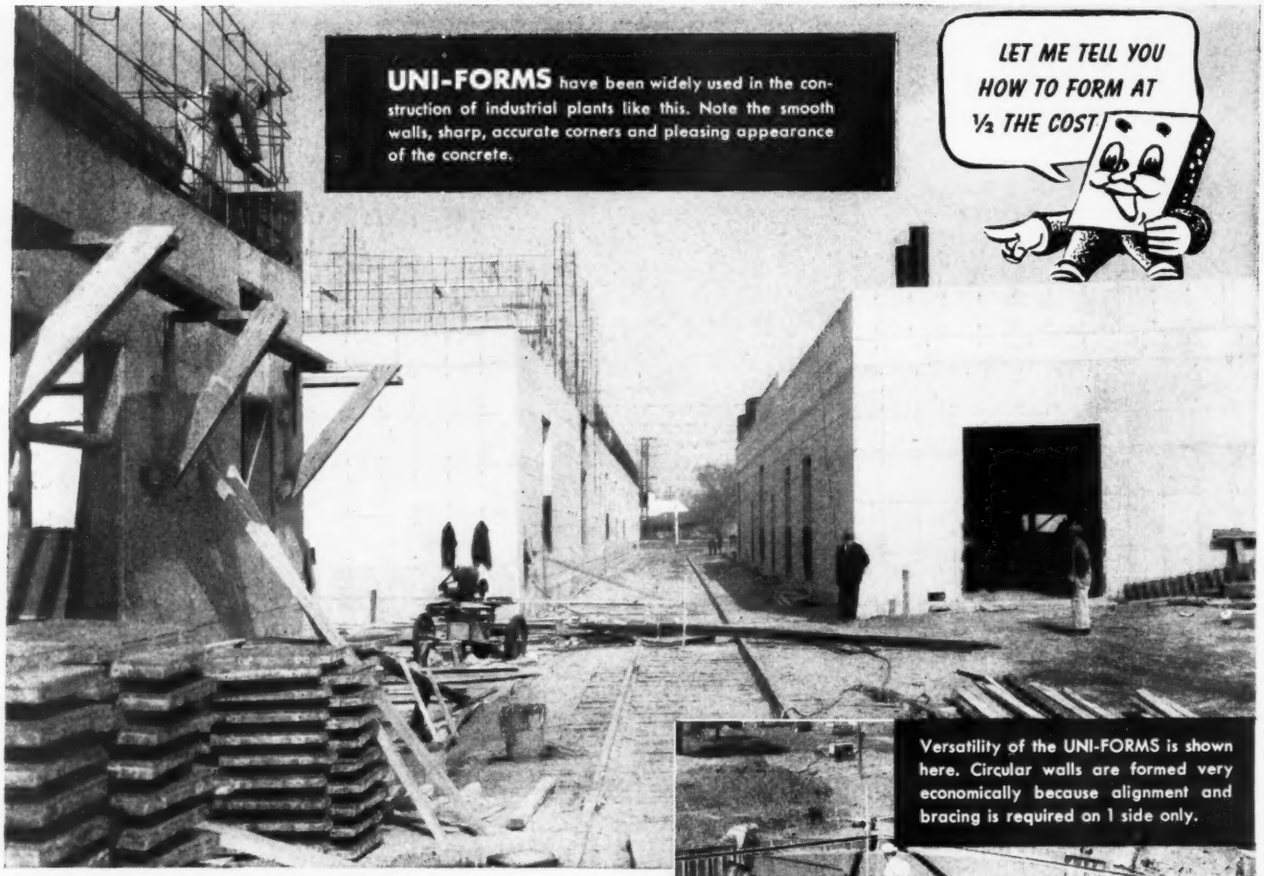
**Iowa Manufacturing Company, Cedar Rapids, Iowa, U. S. A.**

PRODUCT OF IOWA

Cedarapids Built by IOWA

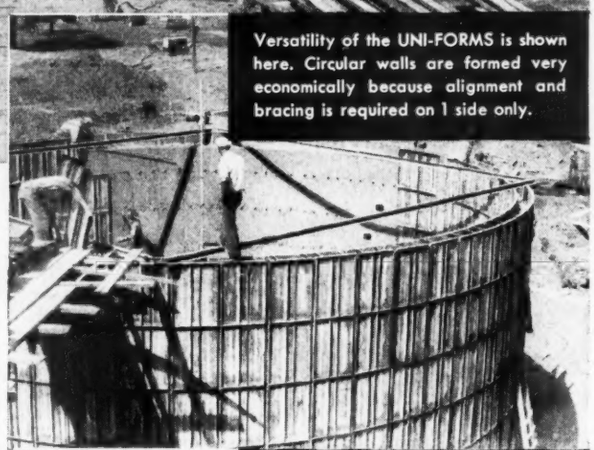
**The Iowa Line** *of Material Handling Equipment Includes*

ROCK AND GRAVEL CRUSHERS
BELT CONVEYORS – STEEL BINS
BUCKET ELEVATORS
VIBRATOR AND REVOLVING SCREENS
STRAIGHT LINE ROCK AND GRAVEL PLANTS
FEEDERS – TRAPS
PORTABLE POWER CONVEYORS
KUBIT IMPACT BREAKERS
DRAG SCRAPER TANKS
WASHING PLANTS
TRACTOR-CRUSHER PLANTS
STEEL TRUCKS AND TRAILERS
PORTABLE STONE PLANTS
PORTABLE GRAVEL PLANTS
REDUCTION CRUSHERS
BATCH TYPE ASPHALT PLANTS



**UNI-FORMS** have been widely used in the construction of industrial plants like this. Note the smooth walls, sharp, accurate corners and pleasing appearance of the concrete.



Versatility of the UNI-FORMS is shown here. Circular walls are formed very economically because alignment and bracing is required on 1 side only.

# UNI-FORMS Handle *Every* Concrete Forming Job

UNI-FORMS can be used to form *any* type of concrete wall—circular, battered, or straight, with the same speed and economy that has made them the preferred prefabricated wall form.

They are faster to erect, easier to strip and require alignment on one side only—regardless of the type of wall being formed. UNI-FORMS are cutting forming time and costs *at least 50%*.

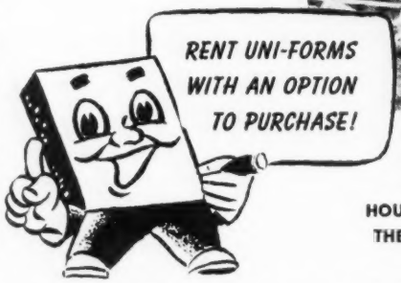
Economies in time and labor are only part of the story—material cost is lower than any other method of forming because UNI-FORMS can be used 30 to 50 times before replacement of plywood is necessary. The steel frame is indestructible.

Write for more information and illustrated literature on The UNI-FORM System of Wall Form Construction.



Foundation walls like this are speedily erected with a minimum amount of alignment and bracing on the outside only.

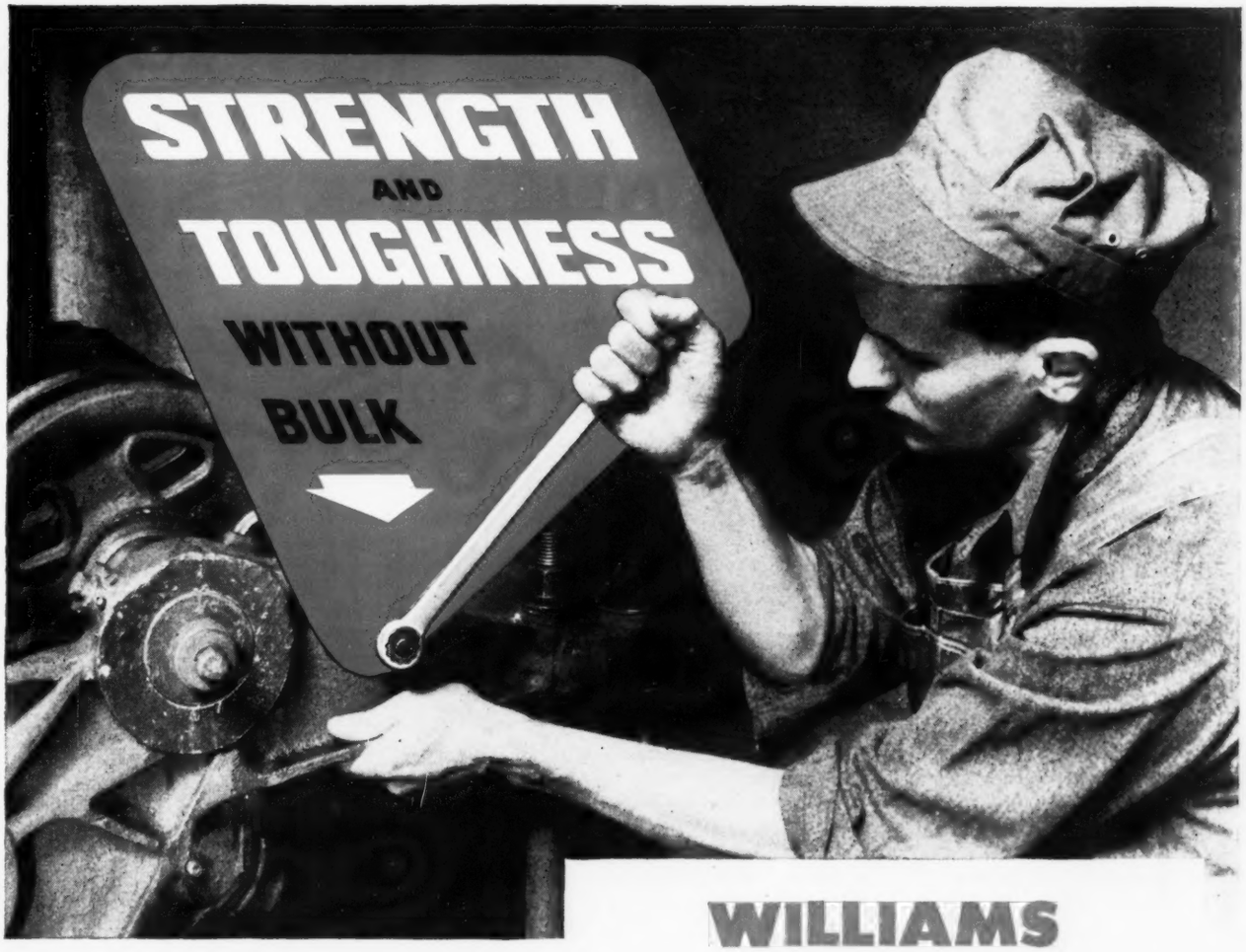
**UNIVERSAL**
**FORM CLAMP**
**Company**
Concrete Form Specialists for 34 Years
Founded 1912
1246 N. Kostner Chicago 31
Better Service Wherever You Build




**The UNI-FORM System of Wall Form Construction is saving building time and costs on every type of concrete construction:**

**HOUSING • SCHOOLS • HOSPITALS • FACTORIES**
**THEATRES • STADIA • SEWER & WATER SYSTEMS**
**and TREATMENT and DISPOSAL PLANTS**

**Concrete Forms • Form Ties • Brick Ties • Reinforcing Steel Supports and Building Specialties**

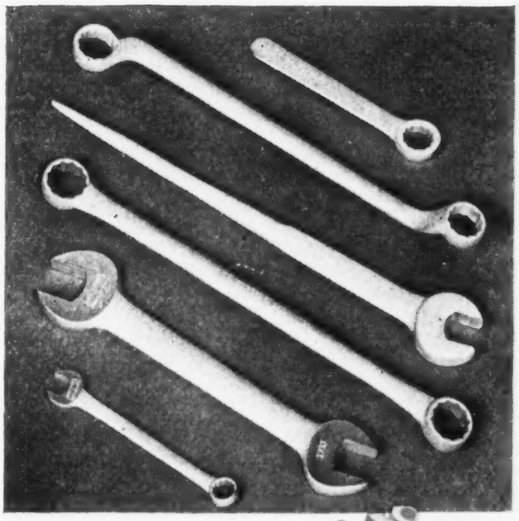



# WILLIAMS "SUPERRENCHES"

● If you want the maximum in wrench strength and toughness with an absolute minimum of bulk and weight . . . your answer is a Williams "Superrench."

These fine wrenches are drop-forged from selected alloy steel and heat-treated, permitting trim, slim lines and exceptional balance. Made in a wide variety of patterns and sizes. Attractively finished in chrome-plate, over nickel, with highly-polished heads. Sold by leading Industrial Distributors everywhere.

**J. H. WILLIAMS & CO., BUFFALO 7, N. Y.**



WILLIAMS

DROP-FORGINGS AND DROP-FORGED TOOLS



# TO SPEED JACKING WORK ON ALL CONSTRUCTION JOBS




*Put* **SIMPLEX** *in the picture*

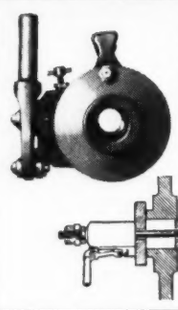
**SIMPLEX HYDRAULIC JACKS AND JENNYS GIVE EXTRA STRENGTH, SAFETY AND VERSATILITY**

Strength, safety and versatility—get all three with Simplex Hydraulic Jacks or Jennys to help make construction jacking work go faster and easier. The complete Simplex line meets every need with efficiency that means hours and dollars saved.

Every Simplex Jack and Jenny is pre-tested to 50% over rated capacity for *extra* safety. Other features that give easier, faster, more dependable operation include Neoprene packing seals, pressure tested bases, a long pump stroke that requires less effort, operation either horizontally or vertically.

For difficult jobs such as pulling wheels, gears or shafts on construction equipment, there's the Simplex Jenny. Its patented "center hole" principle makes it possible to do these and similar tough pulling operation in minutes instead of hours. The Simplex-Jenny also serves as a press or for conventional jacking work.

**SIMPLEX-JENNY CENTER HOLE PULLER**



Saves time, saves manpower on tough pulling jobs.

**USE THIS COUPON FOR 30-DAYS FREE TRIAL**

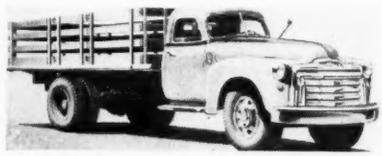
Try the Simplex Hydraulic Jack or Jenny on the job—FREE. Jacks are available in 3, 5, 8, 12, 20, 30, 50 and 100-ton capacities. Name the one that suits your needs and we'll send it without obligation for a 30-days free trial.

☐ Send_____ton Simplex Hydraulic Jack on trial.
☐ Send_____ton Simplex-Jenny on trial.
Send illustrated bulletin on_____Jacks_____Jennys.
Name_____
Company_____
Address_____
City_____ Zone____ State_____
Nearest Jobber_____

**Simplex** LEVER - SCREW - HYDRAULIC **Jacks**

SEND TO
**TEMPLETON, KENLY & CO.**
1008 South Central Avenue
Chicago 44, Illinois

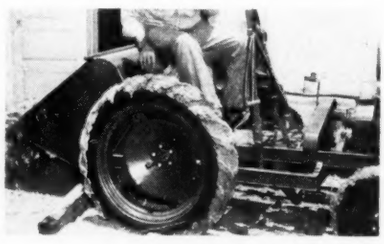

**TRUCKS** — Radical appearance changes plus new cab construction in light and medium-duty models (illustrated) and increased horsepower for heavy-duty gasoline and diesel group highlight improvements in 1947 GMC truck line. Light and medium trucks will feature entirely restyled grille, hood and fenders, larger all-steel cabs with increased visibility and greater driver comfort, stronger front and rear axles, heavier



frames and many engine improvements. Two new models have been added to light and medium-duty lines —1½-ton FC 280 and 3½-ton FC 470. The 280 is designed for straight truck work in 11,000-lb. gross vehicle weight classification and 470 series provides models whose carrying capacities are equal to those of prewar heavy-duty 550 series. There are also five special tractor models with 72-in. CA dimension, standard. Two of these are in light-duty series, while others are in medium-duty range.—**Truck & Coach Division, General Motors Corp., Detroit, Mich.**

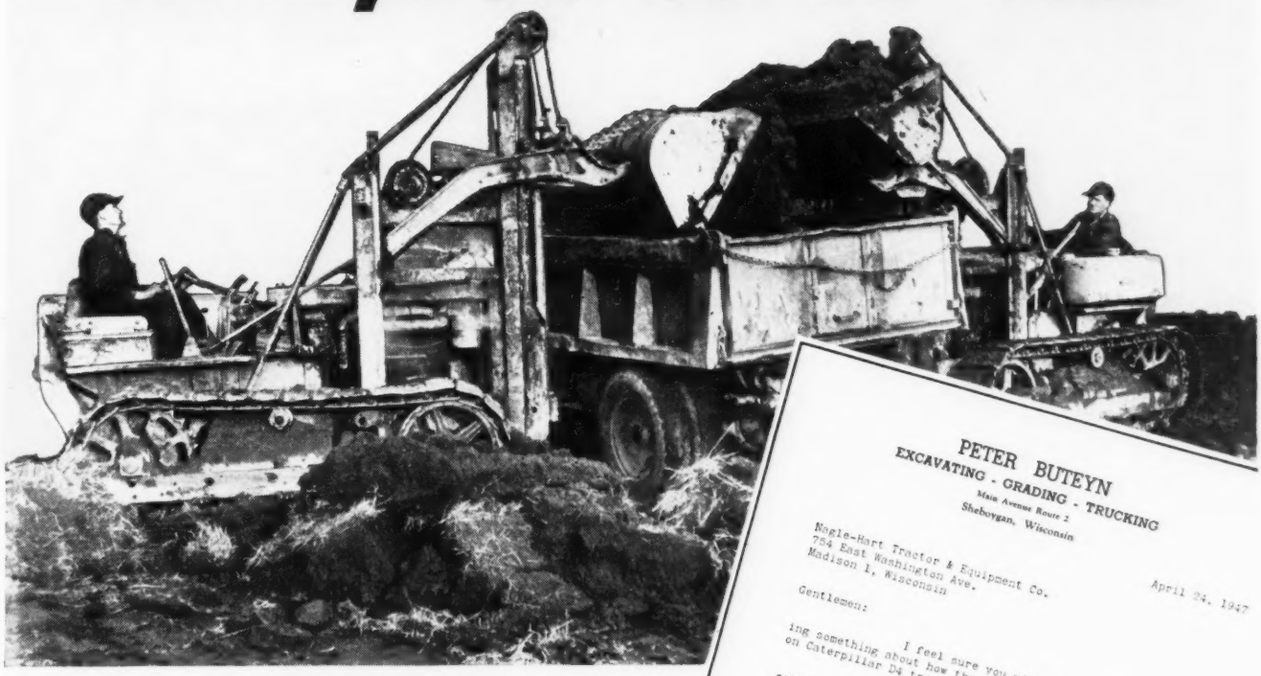
**LUBRICATING GREASE** — Lead-Lube, for open gears and bearings, is said to be the closest approach to a permanent lubricating medium which has been achieved. Product is a mixture of extremely fine metallic lead powder, and high grade lubricating grease. After period of use, Lead-Lube will form coating of metallic lead over all gear and bearing surfaces. When this lead coating is formed, requirements for additional grease will have been reduced to an absolute minimum.—**Knapp Mills, Inc., 121 Broad St., New York, N. Y.**

**CONCRETE CARRIER** — Specially designed bucket attached to rear of Gibson tractor is dumped by means of foot lever. Box in front

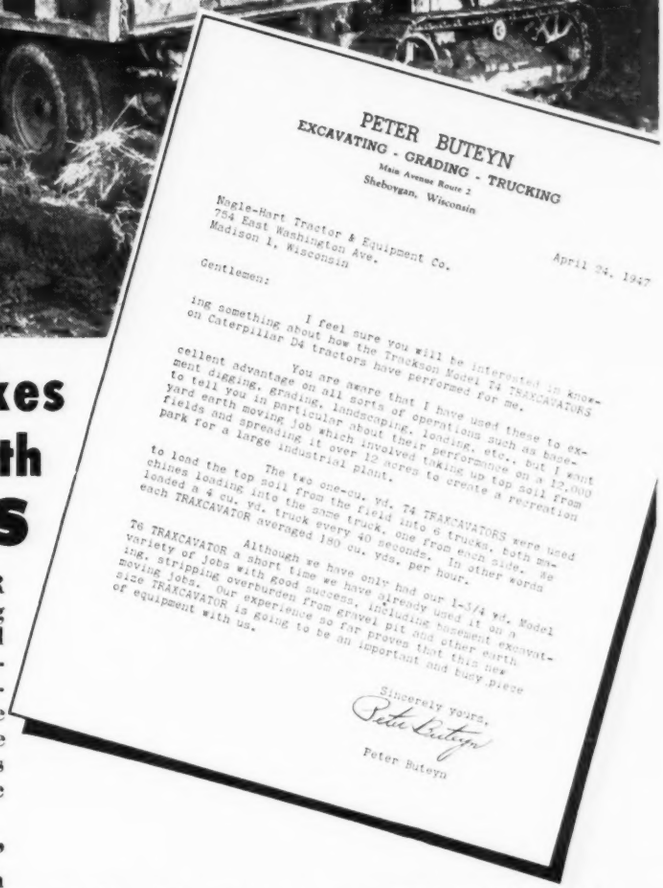


counterbalances load at rear, enabling tractor to operate with its usual maneuverability. Carrier is built to hold 1 cu. yd. of mixed concrete.—**Nixon Mfg. Co., New Braunfels, Tex.**

# 360 Cu. Yds. Per Hour on 12,000 Cu. Yd. Job!



## . . . Contractor makes Record Performance with TRAXCAVATORS



PETER BUTEYN
EXCAVATING - GRADING - TRUCKING
Main Avenue Route 2
Sheboygan, Wisconsin

Nagle-Hart Tractor & Equipment Co.
754 East Washington Ave.
Madison 1, Wisconsin

April 24, 1947

Gentlemen:

I feel sure you will be interested in knowing something about how the Trackson Model T4 TRAXCAVATORS on Caterpillar D4 tractors have performed for me.

You are aware that I have used these to excellent advantage on all sorts of operations such as basement digging, grading, landscaping, loading, etc., but I want to tell you in particular about their performance on a 12,000 yard earth moving job which involved taking up top soil from fields and spreading it over 12 acres to create a recreation park for a large industrial plant.

The two one-cu. yd. T4 TRAXCAVATORS were used to load the top soil from the field into 6 trucks, both machines loading into the same truck, one from each side. We loaded a 6 cu. yd. truck every 40 seconds, or in other words each TRAXCAVATOR averaged 180 cu. yds. per hour.

Although we have only had our 1-3/4 yd. Model T6 TRAXCAVATOR a short time we have already used it on a variety of jobs with good success, including basement excavating, stripping overburden from gravel pit and other earth moving jobs. Our experience so far proves that this new size TRAXCAVATOR is going to be an important and busy piece of equipment with us.

Sincerely yours,
Peter Buteyn
Peter Buteyn

**Mr. Buteyn has been a satisfied TRAXCAVATOR owner for years and has recently added a big model T6 to his equipment. The job described is typical of the kind of satisfaction and performance he gets from these powerful tractor-excavators. His letter is proof-positive of the profit-making results owners can expect because TRAXCAVATORS can do more different kinds of jobs at lower costs than any other machine of comparable size, power and capacity.**

**TRAXCAVATORS, powered by "Caterpillar" track-type tractors, are available in 4 sizes with bucket capacities ranging from ½ to 4 cubic yards. There's a size for every job and purpose. See your TRACKSON-"Caterpillar" dealer about profit-making ways to use TRAXCAVATORS, or write direct to TRACKSON COMPANY, Dept. CM97, Milwaukee 1, Wisconsin**

# TRAXCAVATOR

REG. U. S. PAT. OFF.

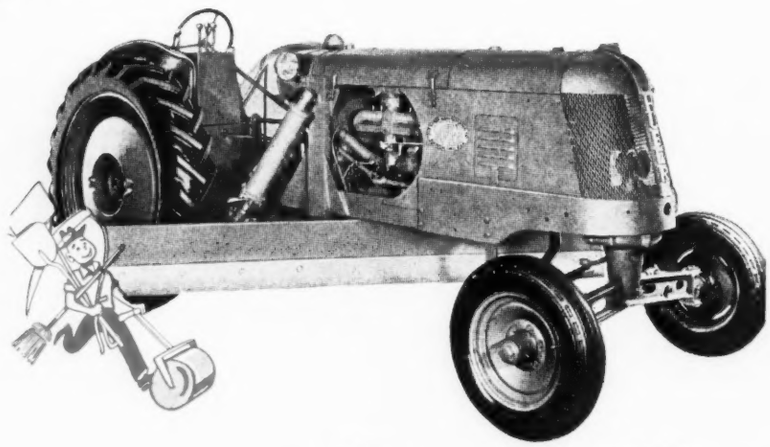
**The Original Tractor Excavator**

# LOOK WHAT YOU CAN DO WITH A HUBER ROAD MAINTAINER

You can make short work of road, highway and airport upkeep and still stay on friendly terms with your maintenance budget. This versatile, full-hydraulic HUBER ROAD MAINTAINER is readily converted to bulldozer, rotary broom, patch roller, scraper, snowplow or lift loader through HUBER built auxiliary units.

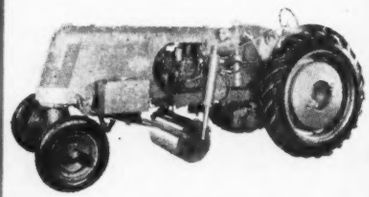
Thus, a single, modest investment covers all of your maintenance requirements, doing each job thoroughly, quickly and at minimum cost.

That is why a HUBER ROAD MAINTAINER should be working for you.





BULLDOZER—Six foot blade cuts one inch below grade—raises to 21 inches above ground level.



PATCH ROLLER—Pressures up to 150 pounds per square inch obtainable through operation of hydraulic control.



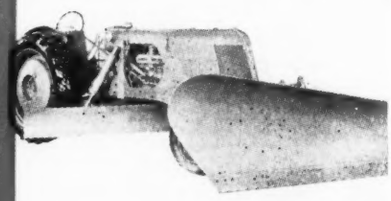
LIFT LOADER—Available with 42" material bucket, 60" snow bucket, or 42" sod fork. Lifts 1000 lbs. 9 feet



ROTARY BROOM—60" Broom riding at 19 degree angle sweeps 73-inch patch. Hydraulic lift control.



V-TYPE SNOWPLOW—Opens 72" lane. Moldboard 31" high at nose, 41" wide at discharge end



ONE-WAY SNOWPLOW—Blade riding at 38 degree angle opens 73-inch lane.

THE HUBER MFG. COMPANY • MARION, OHIO, U. S. A.

# HUBER MAINTAINERS

ALSO

3 WHEEL AND TANDEM ROAD ROLLERS




# 2 Ways RED LEAD NEUTRALIZES ACIDS ...Retards Rusting

Those responsible for making metal last have long accepted Red Lead as the "standard" metal protective paint.

Now scientific research discloses sound reasons why Red Lead gives plus protection. For example, one important factor is Red Lead's ability to counteract the acid conditions which accelerate rusting.

Red Lead accomplishes this in two ways.

**1. Red Lead Counteracts Environmental Acids:** The uses to which structural steel is put normally expose it to acid environments. For one thing, it is usually subjected to the attacks of industrial gases and smoke. Certain of these, in contact with moisture, produce acid-forming compounds that speed up rusting. Then, too, pollution of waterways also results in acidity. Red Lead effectively neutralizes all such acids, and thus counteracts their rust-accelerating effect.

**2. Red Lead Controls Inherent Acids:** Many paint vehicles, such as linseed oil, synthetic resin varnishes and other commonly used types, *themselves* produce organic acids during the natural process of ageing. Many of these inherent acids, too, hasten corrosion. However, when Red Lead is the pigment in a metal protective paint, this rust-causing acidity is kept in check. Thus, a "controlled" acid level is maintained in the paint film. This is a singular property of Red Lead and contributes greatly to its film flexibility, impermeability and long life.

* * *

Remember that Red Lead is compatible with practically all vehicles commonly used in metal protective paints, including many of the fast-drying resin types.

**Specify RED LEAD for ALL Metal Protective Paints**

The rust-resistant properties of Red Lead are so pronounced that it improves any metal protective paint. So, no matter what price you pay, you'll get a better paint if it contains Red Lead.

* * *

*The benefit of our extensive experience with metal protective paints for both underwater and atmospheric use is available through our technical staff.*

**NATIONAL LEAD COMPANY:** New York 6; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Boston 6, (National Lead Co. of Mass.); Philadelphia 7, (John T. Lewis & Bros. Co.); Pittsburgh 30, (National Lead Co. of Pa.); Charleston 25, W. Va., (Evans Lead Division).

**DUTCH BOY**
Reg. U.S. Pat. Off.
**RED LEAD**




LUBRIPLATE maintains a durable, load carrying film at the "Friction Point," which reduces friction, retards progressive wear and prevents rust and corrosion. That is why gears lubricated with LUBRIPLATE last longer and run better. Don't take our word for it. Prove it to yourself. Thousands have in every industry.

LUBRIPLATE

Lubricants definitely reduce friction and wear to a minimum. They lower power costs and prolong the life of equipment to an infinitely greater degree. LUBRIPLATE arrests progressive wear.

LUBRIPLATE

Lubricants protect machine parts against the destructive action of rust and corrosion. This feature alone puts LUBRIPLATE far out in front of conventional lubricants.

LUBRIPLATE

Lubricants are extremely economical for reason that they possess very long life and "stay-put" properties. A little LUBRIPLATE goes a long way.

LUBRIPLATE

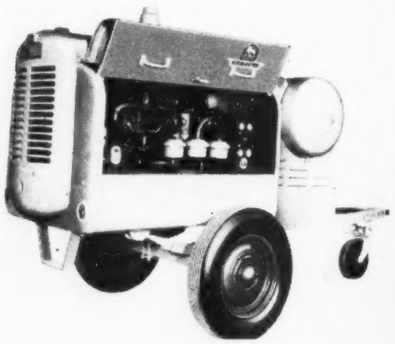
FISKE BROTHERS REFINING CO.

NEWARK 5, N. J. TOLEDO 3, OHIO

DEALERS FROM COAST TO COAST

CONSULT YOUR CLASSIFIED TELEPHONE BOOK


**AIR COMPRESSOR** — Newest Le Roi compressor is 85 Airmaster with 29-hp. Model D201 valve-in-head engine with replaceable cylinder sleeves, precision bearings, pressure lubrication and magneto ignition.



Compressor is rated at 85 cfm. and is regulated by Econotrol, which controls operation automatically according to demand for air. This model is offered in choice of two mountings, Type E pneumatic wheels and Type A hard wood skids. Full length tool boxes are standard equipment—**Le Roi Co., 1706 S. 68th St., Milwaukee 14, Wis.**

**AIR-COOLED ENGINE** — New 1½-hp. single-cylinder engine, known as AA7 model, is 4-cycle, L-Head unit, cooled by blower-type flywheel shrouded to force air over large cooling fins on cylinder and head. Bore is 2⅛ in.; stroke is 2 in.; and piston displacement is 7 1/10 cu. in. —**Continental Motors Corp., Muskegon, Mich.**

**CARBIDE TIPPED MASONRY DRILLS**—Handy kits for use with drill press, hand drills or electric portable drills contain five of most popular sizes—carbide tipped drills and boxed sets contain eight. Both are available with drills having




either round or Super-grip hex-type shanks of improved slip-proof design. Also included with each kit and set is new chart indicating proper size drill to use in drilling masonry for all types of expansive screws, bolts, bolt shields, anchors, etc.— **Super Tool Co., 21650 Hoover Rd., Detroit 13, Mich.**


"AMES"

PONY

FEATHERWEIGHT SOLID SHANK SHOVELS

Perfect Balance

•

Equipped with SHOCK BAND

MADE FROM ONE SOLID BAR OF STEEL

AMES Since 1774

1 — Blade is forged from solid bar of steel.

2 — "AMES" shock band protects and strengthens handle.

3 — High bend for perfect balance.

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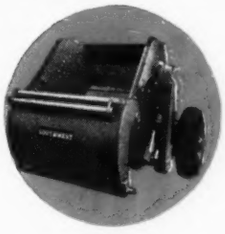
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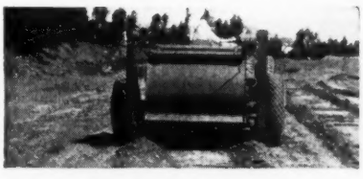
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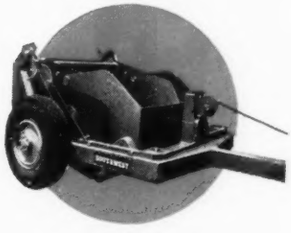
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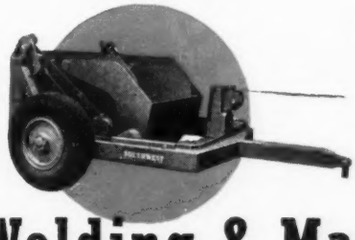










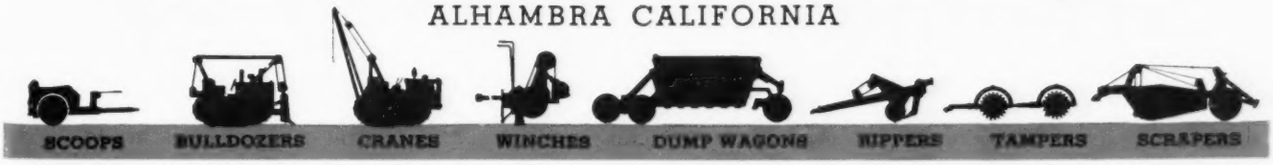


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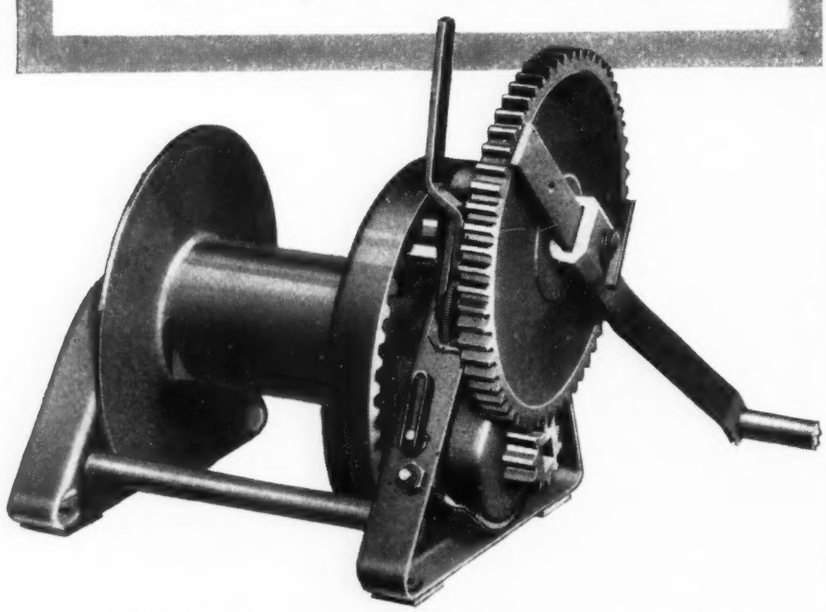


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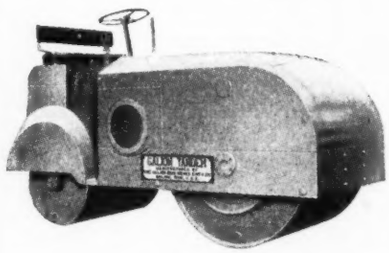
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**TANDEM ROLLER**—New 3-to-5-ton roller is of variable weight design with metal weight of 7,120 lb. and ballasted weight of 10,250 lb. Fully ballasted, compression under main roll is listed as 170 lb. per inch of



roll width and 85 lb. under steering roll. Main compression roll is said to be of unusually large diameter. Both rolls are fitted with front and rear scrapers and mats. A 50-gal. water tank, for sprinkling both rolls, is provided.—**Galion Iron Works & Mfg. Co., Galion, Ohio.**

**AUTOMATIC WEIGHT BATCHING UNIT** — New Conveyco electronic weight control unit for concrete and asphalt batch plants is designed around standard electrical equipment and uses dial scale with single indicator hand and one photo electric cell. Entire electrical system is located in small removable panel on base of scale. No energy is taken from scale mechanism, instead ingeniously guided light beam transfers signal to photo electric eye activating batcher bin gates for each kind of material as arm on dial scale reaches pre-selected weights. Adjustment of weights for each type of aggregate is made from front of dial. Once set, batching is done automatically. Unit is adaptable to either semi-automatic batching or fully automatic operation.—**The Conveyor Co., 3260 E. Slauson Ave., Los Angeles 11, Calif.**

**TRACK JACK**—Designed to facilitate rail maintenance, Type-A jack provides new pawl and socket design that is said to cut maintenance 81 percent, make lifting 31 percent easier, give greater protection to operator and provide larger striking surface. Features include full-rated lifting capacity on cap and toe, electrided gibs, hardened steel wearing plate, and spring-backed pawls.—**Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44, Ill.**



# Welded Construction Simplifies Face-Lifting Operation

**By WILLIAM B. MILLER, C. E.,**
Consulting Engineer for Walker & Weeks, Architects, Cleveland, Ohio

INTERESTING problems in the integration of structural iron work in two adjacent buildings were encountered in a remodeling job on the Williamson and Otis Buildings in Cleveland.

It was desired to extend a bank's quarters from the Williamson Building into the Otis Building, but this was complicated by the fact that the front of the Otis Building projected 4 inches over the building line. It was necessary to set back this front and apply a new front of terra cotta and granite to both buildings so that the architectural design would carry through.

The front of the Otis Building, being wall bearing, was supported at the second floor line by a box Warren type truss. In order to set the front back it was necessary to slice this truss in half in a longitudinal direction. The architectural design was so worked out that a girder beam could be erected below this truss and masonry walls carried up to support existing walls.

The first step was to install temporary shoring to carry the load of existing walls during alterations. Fig. 1 shows the welding of temporary needle beams to the bottom flange of the old truss. Welding was used to avoid any possible movement in the needle beams. Next, tubular struts were arc welded into the old truss at frequent intervals so that underpinning loads could be carried directly through the truss into the masonry wall above. Fig. 1 shows two of these tubular struts directly behind a gusset plate at a web intersection of the old truss.

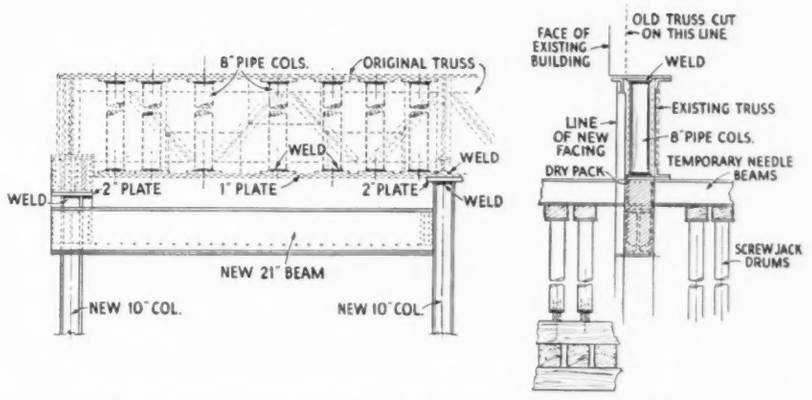



*Fig. 2. Front view and cross-section showing alterations made in order to set wall back.*

Fig. 2, a general sketch, shows the new 21-inch I-beam erected on new columns beneath the old truss to assume the wall-bearing load and support new masonry. Cross-section shows the tubular struts and the lines of the old and new facing. A masonry wall was then installed from the top of this beam and dry packed to the underside of the truss. The truss was then cut longitudinally and filled in with masonry between the tubular struts to complete the job. After building loads were properly transferred to new 21″ beam (located below old truss), the shoring drums were removed and needle beams flame cut to clear new masonry.

The original columns of the Williamson Building, erected in the 1890's, were made by combining four Z-bars with exterior plates and interior lacing. Some of this lacing was strengthened during this remodeling with arc welding. To connect new beams into this type of column it was necessary to weld new plates between existing lacing of this column. At other points brackets were welded as shown in Fig. 3.

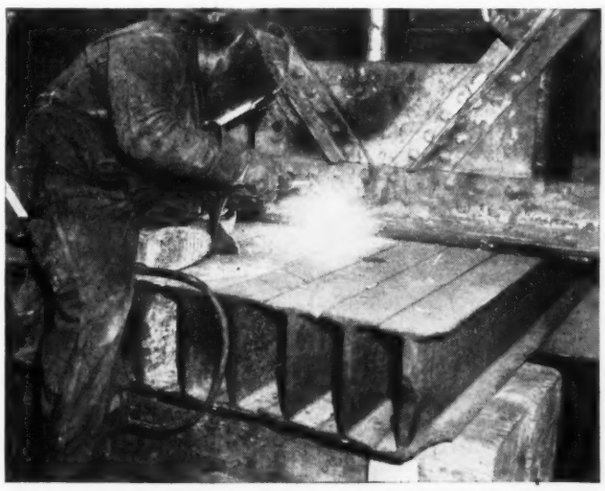


*Fig. 1. Welding bottom of truss to needle beams acting as temporary support.*



*Fig. 3. Brackets from 21-inch I-beam are welded to existing column.*

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**DRINKING WATER BAG**— Called "Water Boy," new large-size canvas bag has complete shoulder harness and apron which straps to back of water carrier, enabling him to climb ladders and make rounds wherever men are working on construction jobs. Chrome spigot at bottom can be used as faucet to fill cups or turned up and used as bubbling fountain—**H. Wenzel Tent & Duck Co., St. Louis 4, Mo.**



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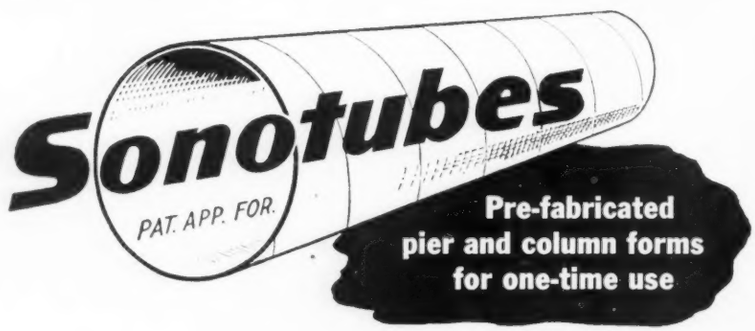
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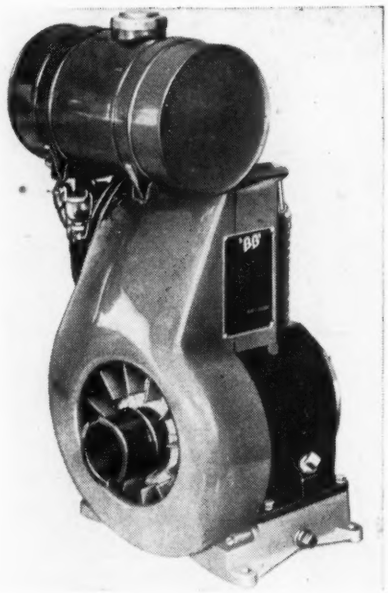
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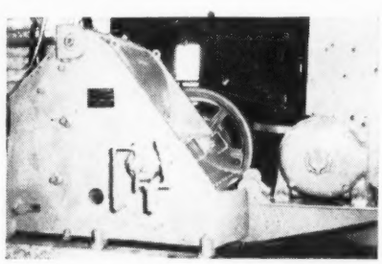
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**LOW HP. GASOLINE ENGINE**—Second model of Gladden "Bee-Line" engines is now in production. Designated as Model BB, it has power range of 2.5 to 4.3 hp. Engine is of clean-cut, compact design, over-




all height, including gas tank, being only 23 in., width 15½ in., and length 14 in. Only 2.9 cu. ft. of space is required. Operating parts are newer types of tough alloys proved best by aircraft engine experience. **—Gladden Products Corp., 635 W. Colorado Blvd., Glendale, Calif**

**CRUSHER**—Kue-Ken Simplex crusher and special motor mounting bracket with vee flat drive is compact unit which crushes without rubbing. Sealed oil bath lubrication



system protects mechanism and permits lubrication only twice a year. All-steel unit is equipped with dustite motor with cooling air ducts that can be piped to draw clean air from outside building. It is made in sizes 12x7 in. to 42x25 in.**—Straub Mfg. Co., Inc., 507 Chestnut St., Oakland, Calif.**

**PLASTIC COATING**—New plastic coating called Plastiglaze, impervious to water, salt air and water, and most mild acid solutions, hardens, toughens and preserves paper, plywood, common lumber, and plas-

(*Continued on page* 150)

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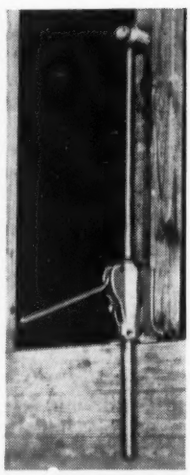



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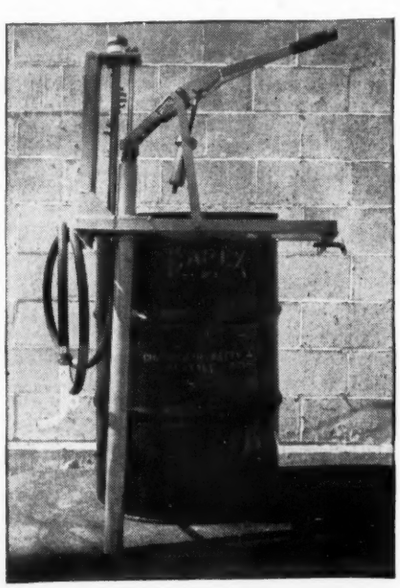
(*Continued from page* 148)

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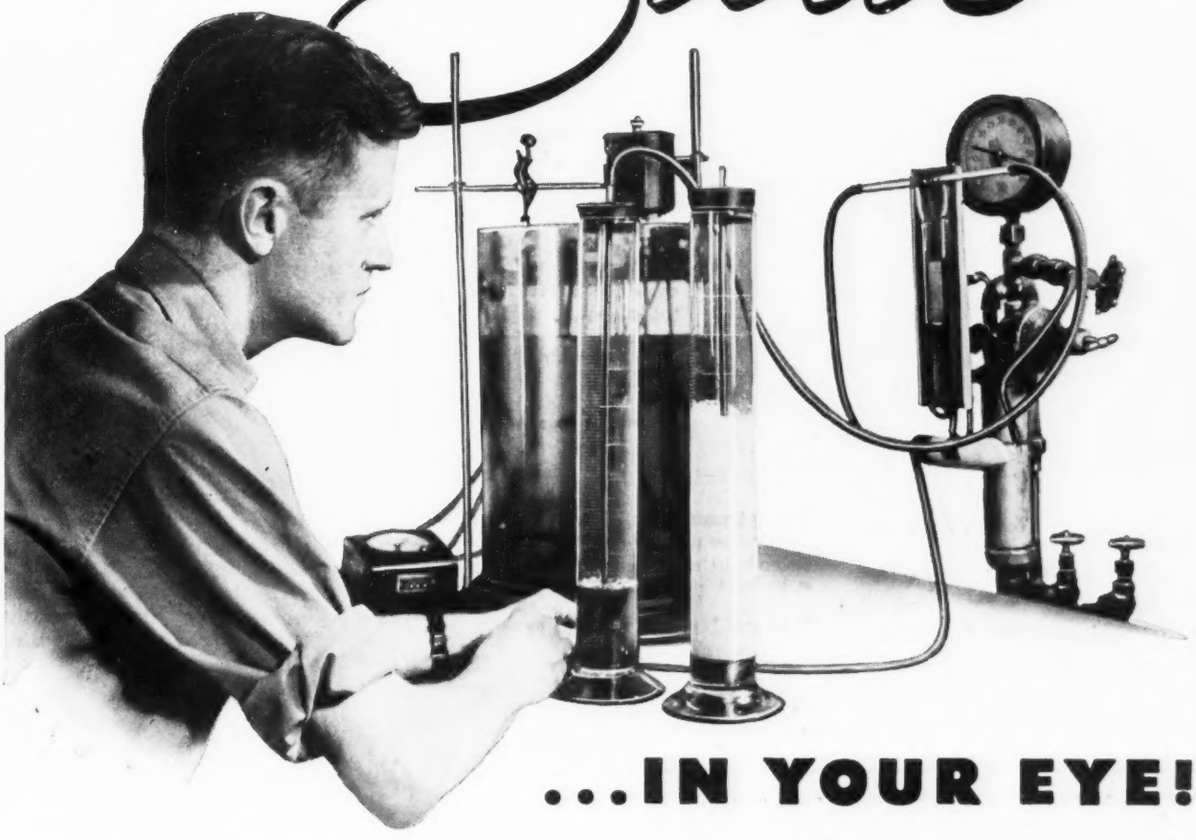


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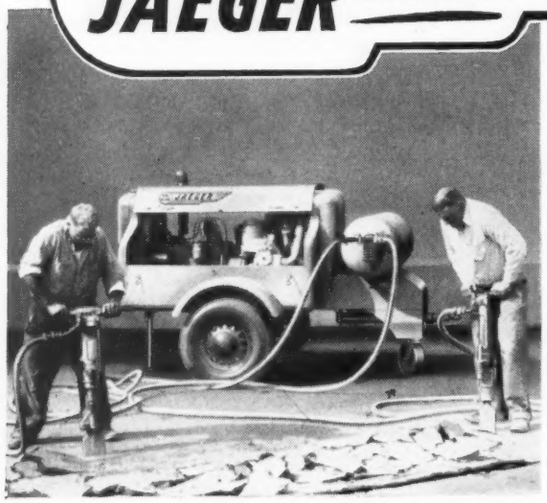
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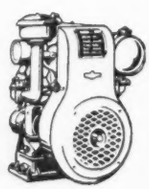
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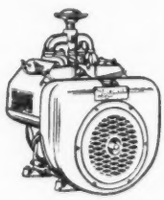
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# *New* PUBLICATIONS From MANUFACTURERS

**The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use**

**EARTHMOVING** — (16-p. booklet) Shows what company's equipment and auxiliary units can do in big and small earthmoving operations, citing applications for dam, airport and housing, road and railroad construction, and other fields.—**Caterpillar Tractor Co., Peoria 8, Ill.**

**SEWER PIPE**—(4-p. mailing piece) Gives instructions for sewer and drain inspection set up in blocks that can be cut out and pasted in inspector's or field inspector's notebook.—**Clay Sewer Pipe Association, Inc., 1105 Huntington Bank Bldg., Columbus 15, Ohio.**

**NON-ELECTRIC MAGNETIC PULLEY**—(8-p. bulletin) Describes how tramp iron or other ferrous metal contamination can be automatically removed from materials in process. Engineering data are given to aid in selecting proper units.—**Eriez Mfg. Co. 2793 E. 12th St., Erie, Pa.**

**MAGNESIUM DOCKBOARDS**—(4-p. folder) Describes safety features of Magcoa dockboards, which replace steel plates formerly used as bridge between loading dock and freight cars or trucks.—**Magnesium Co. of America, 1 N. La Salle St., Chicago 2, Ill.**

**HIGHWAY TRESTLE BRIDGES**—(Booklet) Gives results of studies by engineers of large number of bridge designs, with complete instructions for ordering "made-to-measure" bridge and 8 pp. of blueprints showing combinations that will take care of normal bridge needs.—**Wood Preserving Division, Koppers Co., Inc., Pittsburgh, Pa.**

**STRAIGHT-BLADE BULLDOZERS**—(12-p. booklet) Records structural and operational features of Nos. 8S, 7S and 6S bulldozer units which are designed exclusively for use with Caterpillar diesel D8, D7 and D6 tractors. Blade, tilting brace and sheave construction are illustrated with cross-section views.—**Caterpillar Tractor Co., Peoria 8, Ill.**

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**ENGINEERING INSTRUMENTS**—(50-p. illustrated catalog) Includes detailed analyses of transits, engineers' levels, precise leveling rods, alidades and topographic instruments and equipment. Hydraulic measuring instruments, water level recorders and indicators, field supplies and wind instruments are also discussed.—**W. & L. E. Gurley, Troy, N. Y.**

**ASPHALT PAVEMENTS** — (20-p. booklet) Furnishes detailed descriptions of types of asphalt paving in which asphalt and aggregate are mixed in plant. It covers proper procedure and materials to be used in construction of sheet asphalt, sand asphalt and various types of hot and cold-laid asphaltic concrete paving.—**Texas Co., Asphalt Sales Department, 135 E. 42nd St., New York 17, N. Y.**

**PROTECTIVE COATING** — (4-p. pamphlet) Gives details of and uses for Koppers Bituplastic, new plastic protective coating that waterproofs and vapor seals. — **Wailes Dove-Hermiston Corp., Westfield, N. J.**

**DRIVE SELECTION**—(144-p. catalog) Covers pre-engineered stock Texrope drives for all applications from 1 to 150 hp. It is said to represent one of most complete compilations of engineering data ever assembled for V-belt industry.—**Allis-Chalmers Mfg. Co., Milwaukee, Wis.**

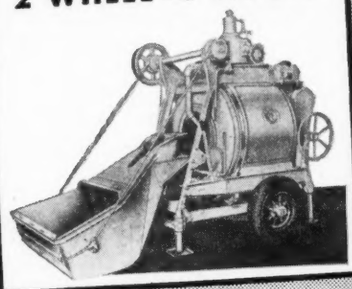
**HEAVY-DUTY ENGINES** — (16-p. booklet) Describes and illustrates four heavy-duty diesel engines ranging in size from 180 to 300 hp. It gives construction features, details regarding combustion, installation and design as well as many illustrations of actual installations. —**Buda Co., 154th & Commercial Ave., Harvey, Ill.**

**WELDING NICKEL ALLOYS**—(16-p. booklet) Covers materials required for metal-arc, oxyacetylene and submerged melt welding of nickel and high nickel alloys. Information is included on type of welding rods to use, recommended amperages for electric-arc welding and proper flux to select for gas welding and brazing.—**International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.**

**TRUCK BODIES AND HOISTS**—(6-p. folder) Describes and illustrates hydraulic hoists, vertical hand hoists and Type A and B bodies.—**Kewanee Mfg. Co., Kewanee, Ill.**


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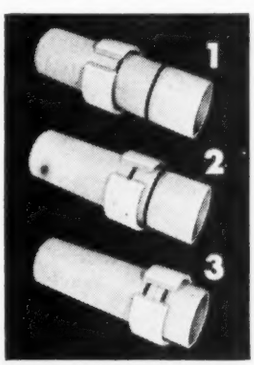
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# Engineering Facts about TRANSITE PRESSURE PIPE

## Subject:—JOINTS

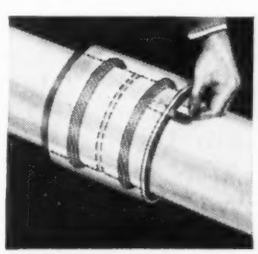
THE SIMPLEX COUPLING—the standard coupling for Transite* Pressure Pipe—was engineered by Johns-Manville to minimize costly underground leakage and to provide maximum protection against pipe line failures resulting from trouble at the joints.




SIMPLICITY of the Simplex Coupling helps assure perfect joints independent of workmen's skill. These cutaway views show complete assembly operation: (1) Start, (2) Sleeve pulled over one ring, and (3) Final position with sleeve centered over joint.

It consists of only three parts: a Transite sleeve, carefully machined to fit over the end of the pipe, and two rubber rings which, when assembled, are tightly compressed between pipe and sleeve. The result is a tight yet flexible seal that provides a number of important advantages.

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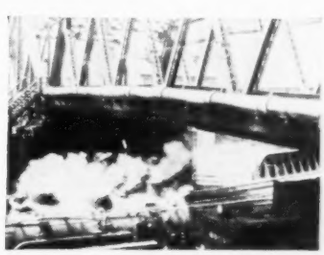
PROPER ASSEMBLY of each joint is readily checked by inserting a feeler gauge between sleeve and pipe. If position of the rubber rings is correct, the joint is properly made.

Moreover, the flexibility inherent in the design of this coupling safeguards against leakage once the pipe has been placed in service. Because each joint is capable of deflection, the entire line has a flexibility not commonly found in other types of underground water line construction. This minimizes flexural stresses in the line . . . enables the pipe to conform to soil movement . . . helps it absorb the vibration of heavy traffic under busy city streets. Many thousands of miles of Transite Pipe confirm the ability of the Simplex Coupling to protect the line against the stresses that so often cause joint leakage and frequently result in pipe failure.



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The flexibility inherent in the Simplex Coupling helps guard against the shock and vibration of traffic. Under busy city streets, this factor also minimizes flexural stresses.

*Transite is a registered Johns-Manville Trade Mark

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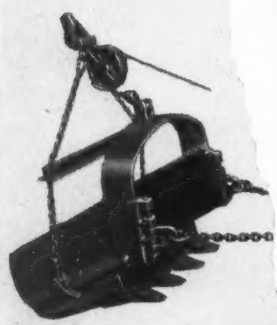
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**SHOVEL-CRANES**—(12-p. catalog) Presents story of ¾-yd. LS-70 shovel-cranes.—**Link-Belt Speeder Corp., Cedar Rapids, Iowa.**

**DIESEL TRACTORS**—(Two folders) Describe power and work features of diesel D6 and D4 tractors.—**Caterpillar Tractor Co., Peoria 8, Ill.**

**WELDING, CUTTING**—(20-p. catalog) Shows comprehensive portion of line of gas welding and flame cutting apparatus.—**Victor Equipment Co., 844-54 Folsom St., San Francisco, Calif.**

**STEEL SHACKLE CLAMP** — (Illustrated folder) Gives specifications for eccentric cam shackle clamp, safety lock clamp, pipe clamp, and horizontal cam grip plate clamp.—**J. C. Renfroe & Sons, 1259 W. State St., Jacksonville 1, Fla.**

**WELDER - GENERATOR COMBINATION** — (4-p. bulletin) Describes double-duty unit that provides 300-amp. d.c. arc welder plus 6- or 12-kw. a.c. auxiliary generator. Another 4-p. folder tells about Weld-mobile self-propeller arc welder with multi-range and remote control.—**Hobart Bros. Co., Box DM759, Troy, Ohio.**

**MARINE AND INDUSTRIAL HARDWARE**—(32-p. catalog) Presents detailed working characteristics of line of wire rope and chain fittings, with tables and charts.—**Thomas Laughlin Co., Portland 6, Me.**

**AIR ENTRAINING AGENT**—(20-p. bulletin) Describes Darex "controlled air" and its ability to improve durability of concrete.—**Dewey & Almy Chemical Co., Cambridge, Mass.**

**TRENCHER** — (Illustrated bulletin) Describes 200-wheel Trenchliner, featuring pivot wheel mounting and tile chute. Detail photos, drawings, and specifications are included.—**Parsons Co., Newton, Iowa.**

**PLASTER-MORTAR MIXER**—(4-p. bulletin) Describes new tool for small and large plaster and mason contractors. — **Koehring Co., Milwaukee 10, Wis.**

**TANDEM ROLLER** — (6-p. folder) Describes and pictures Wheeler 3- to 4-ton roller, featuring one-lever steering control.—**Shaw Sales & Service Co., 5100 Anaheim-Telegraph Rd., Los Angeles 22, Calif.**

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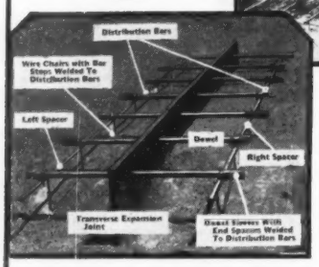
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**ROAD REPAIR EQUIPMENT**—(8-p. folder) Describes steam heater, supply tanks, pressure distributors, and highway brooms.—**Littleford Bros., 457 E. Pearl St., Cincinnati 2, Ohio.**

**AIRBRUSHES**—(Two bulletins and 4-p. folder) Describe and illustrate multiplehead and automatic airbrushes, giving price list and directions for operations and care.—**Paasche Airbrush Co., 864 Pape Ave., Toronto 6, Ont., Canada.**

**LESSONS IN ARC WELDING**—(Third edition, 158 pp.) Provides complete instructions in all phases of arc welding, incorporating wealth of new material, such as complete treatment covering welding with alternating current; new procedures covering large electrodes; newest electrodes and their use; a number of lessons on pipe welding; and data on qualification of welding operators. Priced at 50 cents.—**Lincoln Arc Welding Co., 12818 Coit Road, Cleveland 1, Ohio.**

**HEAVY-DUTY TRUCKS** — (8-p. folder) Describes and illustrates Model M6x6 six-wheel-drive heavy-duty trucks.—**Four Wheel Drive Auto Co., Clintonville, Wis.**

**MONOLITHIC CONSTRUCTION**—(8-p. brochure) Gives complete description of how Tournalayer operates and produces various combinations of basic, monolithic units to provide any size or style home.—**R. G. LeTourneau, Inc., Longview, Tex.**

**WALL FRAMING**—(Three 7¼x9½-in. blueprints) Illustrated stud walls without bracing but with diagonal sheathing; with let-in bracing and horizontal sheathing; and with cut-in bracing and horizontal sheathing. —**West Coast Lumbermen's Association, 1410 S. W. Morrison St., Portland 5, Ore.**

**RADIANT HEATING**—(42-p. manual) Describes Rayduct, high-ductility pipe for radiant heating installations. It covers general features, basic design and typical applications.—**Bethlehem Steel Co., Inc., Bethlehem, Pa.**

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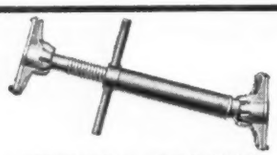


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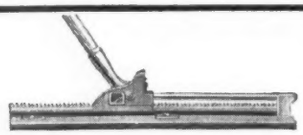
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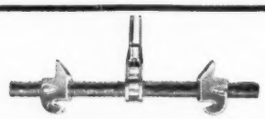
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**THE DUFF-NORTON MANUFACTURING CO.**

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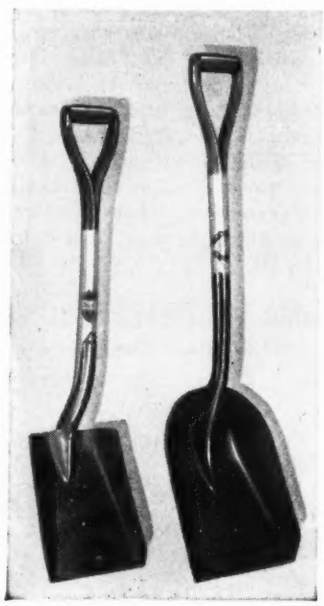
*See your Associated Equipment Distributor*


**HOUSE CONNECTION PIPE**—(8-p. brochure) Describes Transite, asbestos-cement product used in sewage disposal lines from private residences and commercial buildings to street sewers or septic tanks. Photographs and explanatory captions clearly show four simple steps needed in assembling pipe.—**Johns-Manville, Box 290, New York 16, N. Y.**

**IMPACT BREAKER**—(8-p. bulletin) Describes Cedarapids Kubit impact breaker, with examples of its use on actual jobs.—**Iowa Manufacturing Co., Cedar Rapids, Iowa.**

**STEEL SERVICE FACILITIES**—(12-p. booklet) Gives quick picture of stocks, facilities and personnel at company's new Los Angeles plant.—**Joseph T. Ryerson & Son, Inc., P.O. Box 3817, Terminal Annex, Los Angeles 54, Calif.**

**STEAM CLEANING UNIT**—(12-p. booklet) Describes new steam cleaning unit with data on construction, engineering specifications, types of models available, and job applications of latest model.—**Oakite Products, Inc., 124G Thames St., New York 6, N. Y.**

**BLADE EDGES**

**GUARANTEED SPLIT-PROOF**

**INGERSOLL SHOVELS**

*"The Borg-Warner Line"*

Write for Catalog and Prices
INGERSOLL STEEL DIVISION
BORG-WARNER CORPORATION
New Castle, Indiana
Plants: New Castle, Ind.; Chicago, Ill.; Kalamazoo, Mich.

**OFFICE LIGHTING**—(18-p. book, with promotional material inserted) Is designed to serve as check list of points to be covered in planned lighting program for offices.—**Edison Electric Institute, 420 Lexington Ave., New York 17, N. Y.**

**ENGINEERING SERVICE** — (24-p. booklet) Presents story of this company, its history, make-up, various offices, aims and purposes. Its personnel includes creators, stylists, designers, engineers, draftsmen and illustrators.—**Design Service Co., 31 Fulton St., Newark 1, N. J.**

**SHOVELS**—(40-p. bulletin) Covers P&H 1055 shovel. Many large pictures show machine at work in coal fields, quarries, on irrigation projects, and other jobs.—**Harnischfeger Corp., Excavator Division, 4400 W. National Ave., Milwaukee 14, Wis.**

**WELDING ACCESSORIES**—(16-p. bulletin) Describes complete line of welding accessories that will be carried in stock at each of company's district offices.—**Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.**


National

Carbide

FLOODLIGHTS



FOR ALL PURPOSES FOR WHICH FLOOD-LIGHTS ARE REQUIRED

Simple in construction

Economical in Cost

Dependable in Operation

Available in 1500, 8,000 and 16,000 candlepower units.

*National Carbide N-200 Light illustrated. Write for literature showing entire line of Floodlights and Lanterns.*

NATIONAL CARBIDE CORP.
60 East 42nd St.
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JACKSON

MUNICIPAL PAVING UNIT



*Knocks the Socks off* PAVING COSTS!

This revolutionary new development in Municipal Paving Units has definitely proved that it can place perfectly upwards of **65 cubic yards of concrete in a single hour!**

**FURTHERMORE, IT EMPLOYS THE ONLY SCREED THAT WILL:**

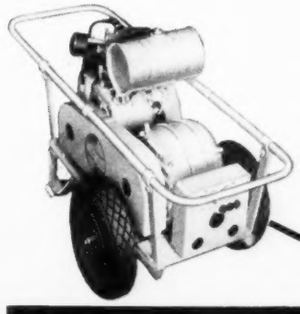
1. Undercut at side forms,
2. Roll back for second pass.
3. Strike-off crowns, both regular and inverted.
4. Permit operators to work from front, rear or sides.

In addition, the screed has such a strong tendency to propel itself in the forward direction that only small effort is necessary to strike-off stiff mixes of concrete. Manholes and storm sewers are no handicap due to the fact the screed does not reciprocate. Does an excellent job of vibrating concrete in slab depths up to 10 inches. Can be used to great advantage on any slab width from 6' on up to any practicable width. For radically reduced costs and far greater production, by all means write for complete details of this remarkable paving unit RIGHT NOW!

*The* COMPLETE UNIT CONSISTS OF:

1 The Model SC200 Screed (for slabs up to 16' wide) or Model SC202 (for slab widths from 16' and up) — activated by the famous JACKSON Vibratory motor. Light weight, easily transported — quickly converted from one slab width to another.

2 One of our famous Portable Power Plants which provide a wide range of vibratory frequencies thus assuring perfect placement of any concrete mix usually specified. These husky plants are Wisconsin engine powered and have permanent magnet generators which require no adjustment or maintenance.

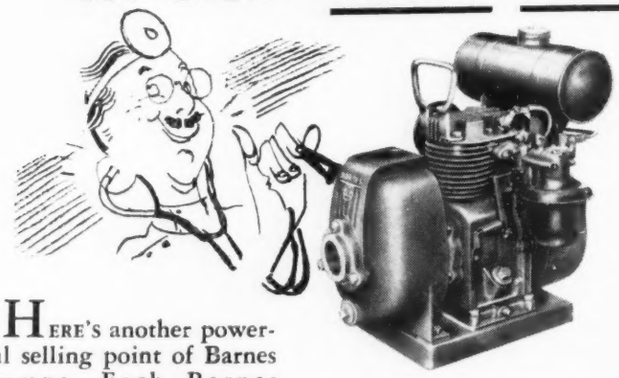


***MODEL M-1 POWER PLANT***

furnished with Model SC200 Screed. Capacity: 1.25 K.V.A. Generates both single phase and 3-phase 110 Volt 60 Cycle AC. Also ideal for operating lights, vibrators and powers tools.

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LUDINGTON MICHIGAN

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HERE'S another powerful selling point of Barnes Pumps. Each Barnes Streamluxe Automatic Centrifugal Pump, from the largest to the smallest, is factory tested by actual operation as it comes from the assembly line and before it is shipped. Each pump is rigidly tested for capacities at various heads and for perfection of engine performance. All in all, 42 different inspections at various stages of manufacture, guard the quality of Barnes Pumps. This Quality-Control at Barnes assures a perfect pump and perfect pumping performance.

For sale by leading distributors in all principal cities.

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PRECISION WATER CONTROL PRODUCTS FOR OVER FIFTY YEARS

## *Extra* SAFETY... *Extra* DURABILITY ...*Extra* OPERATING EASE... WITH COFFING SAFETY-PULL HOISTS

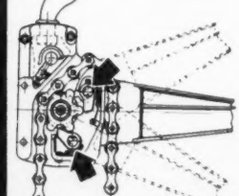


*Moving Steel Inverts*

Check these features that give longer hoist life, greater ease of operation—

- Hooks of drop forged heat treated steel
- Each model pre-tested to 100% overload
- Reversible handle permits operation in any position
- Coffing exclusive dual ratchet and pawl assembly for maximum safety
- "Safety Load" handle—bends before other parts will break
- Nine models in capacities from ¾ to 15 tons

Sturdy, simple pawl construction insures safe, easy operation.



*Write for Bulletin RL-3*

**COFFING HOIST CO.**
DANVILLE • ILLINOIS

RATCHET LEVER HOISTS • LOAD BINDERS • SPUR GEAR HOISTS • ELECTRIC HOISTS • DIFFERENTIAL HOISTS TROLLEYS


# EQUIPMENT MEN

## *and Their Companies*

**Link-Belt Co.,** Chicago, Ill. announces that **Harold L. Hoefman** (left) was elected vice-president, in



H. L. Hoefman



D. E. Davidson

charge of manufacturing. **David E. Davidson** (right) has been appointed general manager of the Pershing Road plant.

**The industrial department** of Dravo Corp., Pittsburgh, has opened a Chicago office to handle sales and service of Dravo Counterflo direct fired heaters for commercial and industrial heating and Dravo crane cab coolers for air conditioning crane cabs in steel mills, foundries and chemical plants. This office covers northern Illinois and the industrial districts of northwest Indiana. **T. W. Eshbach** is in charge of the new branch office at 208 S. LaSalle St.

**David S. Betcone,** long associated with the development of markets for Douglas fir plywood, has established a new firm, Engineered Plywood Products Co., Tacoma, Wash., to supply industrial panel users with plywood and veneer cut to size and pattern.

**Establishment** of a new product service division has been announced by the A. O. Smith Corp., of Milwaukee, Wis. The new service facilities will begin to function immediately for the company's glass-lined water heaters, coal stokers, welding equipment, electric motors, pumps, and meters.

**Edward D. Townsend** has retired as vice-president of the Beckwith Machinery Co., after 35 years with this firm.

**H. D. Worthington** has been appointed supervisor, construction material sales, Chicago district, American Steel & Wire Co., the U. S. Steel subsidiary announced.



The SEAMAN mixing sand and bitumen. Sand, because of moisture content had earlier resisted proper curing of mix. The SEAMAN'S characteristic of aeration eliminates such difficulties. Note the footprints which illustrate fluffy, well-aerated mix.

# For a Better, Faster Curing Bituminous Treatment . . . Aerate Solvents or Moisture *While You Mix* with the

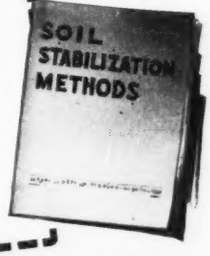
# SEAMAN *Mixer*



Hood open operation to reduce high moisture content in aggregate.

THE HIGH VELOCITY, all-directional movement of aggregates and binder within the hood of the SEAMAN MIXER is one reason why an intimate and thoroughly homogenous mix is quickly produced. But there's also another vitally important advantage: *aeration* . . . Should the aggregate be running a bit too high in moisture, – the SEAMAN will often save a shut-down, for it dries as it mixes . . . And it's that same simultaneous aeration that helps to evaporate solvents in certain bituminous mixes so that, – after the mix is completed, a faster, firmer set is obtained . . . Many operators have found the SEAMAN invaluable for use in conjunction with mixing plants of conventional design, for the SEAMAN can often double daily output. Again, – that vital factor of drying by aeration, keeps the conventional plant in operation when moisture content of aggregates might otherwise have meant a shut-down . . . So for your regular mixing – and for emergencies, – have the SEAMAN on your jobs.

*The ever-popular book "Soil Stabilization Methods", compiled by Seaman engineers is yours on request. Just ask for Bulletin C-25.*

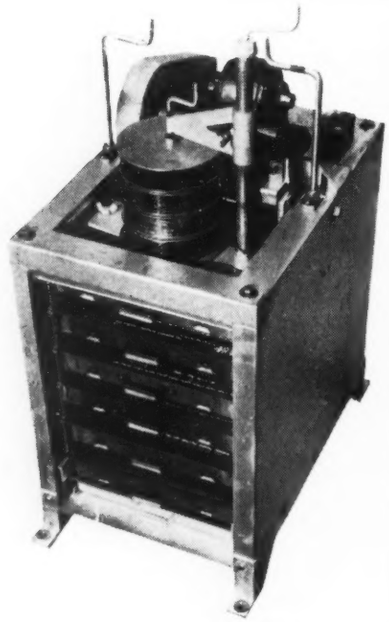



**SEAMAN MOTORS, INC.**

MILWAUKEE 3, WISCONSIN

# GILSON Mechanical Testing Screen

**2 to 7 separations simultaneously in 3 to 5 minutes**



**Fast, accurate sizing of coarse or fines from 4" to 200 mesh**

Handles up to 1 cu. ft. of sample. Separation approaches theoretical refusal point. For concrete research, crushed stone, gravel, slag, etc. Sand-testing attachment optional.

**8 GILSON FEATURES**

1. Makes tests quickly and accurately.
2. Two to seven separations simultaneously.
3. One machine for the entire size range.
4. Screen trays independently removable.
5. Trays adjusted to same tare weight.
6. Visible separation to refusal.
7. Few moving parts to wear out.
8. Engineered for long and practical service.

***Write for details***

**GILSON SCREEN CO.**
BOX 186 MERCER, PA.


**Link-Belt Co.,** Chicago, Ill., announces the following promotions: **Ralph W. Rausch** has been appointed chief engineer. He succeeds **C. S. Huntington,** who has retired because of ill health. **H. Walter Regensburger** has been appointed divisional engineer in charge of estimate-engineering at the Pershing Road plant. **Eugene P. Berg** becomes general superintendent at the Pershing Road plant. **Joseph C. Spence** has been appointed assistant to **Harold L. Hoefman** the recently announced vice-president in charge of manufacturing.

**Announcement** has been made of the election of **S. R. Ives** as president of Armco Drainage and Metal Products, Inc., Middletown, Ohio. **M. C. Patton** has been elected executive vice-president and **H. D. Neill,** vice-president in charge of sales. Messrs. Ives and Patton have also been elected president and executive vice-president, respectively, of Armco Drainage and Metal Products of Canada, Ltd.

**Appointment of Chester L. Jones, Jr.,** as sales manager of Monsanto Chemical Co.'s protective coatings department was announced by the company's Merrimac division.

**A building materials installation school** has been established by the building materials division of the Armstrong Cork Co., Lancaster, Pa., and will be used for the training of salesmen and the development of trained installation mechanics.

**W. & L. E. Gurley,** of Troy, N. Y., century-old manufacturers of engineering instruments, has enlarged its reticle-making department to manufacture glass reticles for all types of optical measuring instruments.

**Dr. Walter C. Rueckel,** New York District sales manager for the engineering & construction division of Koppers Company, Inc., since 1945, has been appointed a vice-president of the company.

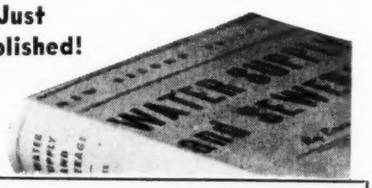
**Harold C. Clark,** head of the road machinery division of Cleaver-Brooks Co., has joined the Rosco Manufacturing Co. of Minneapolis, Minn. He will have complete charge of all sales east of the Mississippi River.

**New purchasing agent** for the Hyster Co., Portland, Ore., manufacturers of lift and straddle trucks and tractor equipment, is **Paul Rhodes.**


# How to design and operate... water supply and sewerage systems

City engineers, sanitary engineers, water and sewerage works operators, and others will find this book a thorough, up-to-date guide to the essentials of design, the latest purification methods and sewage disposal systems. This book provides you with tested solutions to all of your water supply and sewerage problems.

**Just Published!**



*NEW SECOND EDITION*

## WATER SUPPLY and SEWERAGE

*by* Ernest W. Steel, C.E.

Consulting Engineer to Instituto Nacional de Obras Sanitarias, Venezuela; formerly Professor of Municipal and Sanitary Engineering, Agricultural and Mechanical College of Texas. 666 pages, $6.00

This new second edition covers in detail everything the engineer needs to handle the varied problem of supplying municipal water and removing sewage. It discusses in a thorough manner the development of public water supplies, design and construction of water distribution sytsems, pumping of water, methods of water treatment, stream pollution and self-purification of streams. The most recent innovations in sewerage systems are discussed in full, giving you information on design and construction of storm and sanitary sewers, methods of disposal, maintenance, filtration, disinfection, etc. Here is a book that will help you along the line in planning and constructing new systems and improving and maintaining your present system.

***Pertinent, usable data on:***

—Estimating water supply and sewerage needs
—Pumping and conveying water
—Impurities and diseases carried by water
—Treatment of water; filters, chemicals, etc.
—Gauging storm sewerage needs
—Pumps, siphons, grease traps and other devices
—Sewerage design and construction
—Disposal systems and treatment of sewage
—Financing and management; costs and administration

***EXAMINE FOR 10 DAYS FREE***

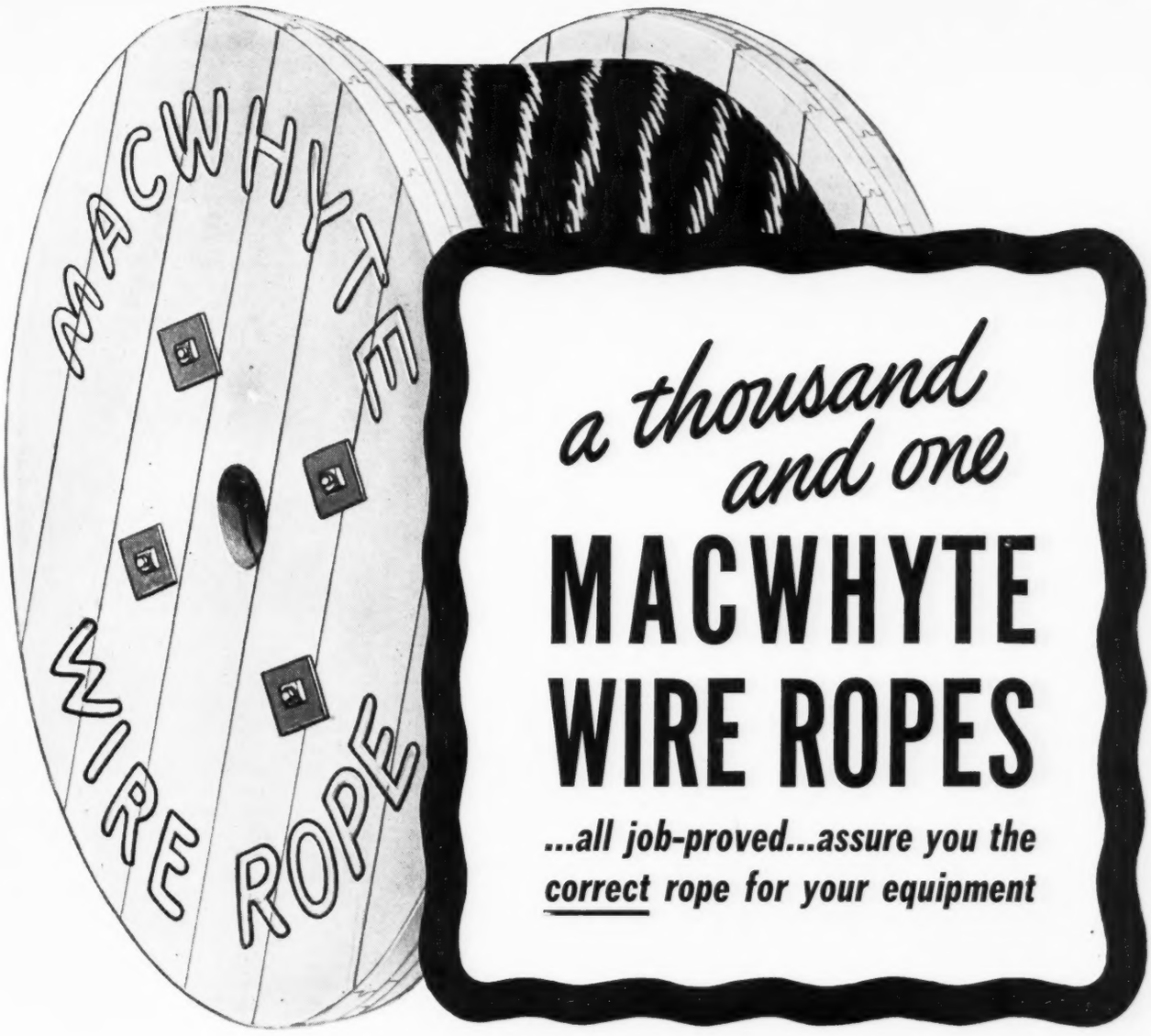
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***...all job-proved...assure you the correct rope for your equipment***

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When you use the correct wire rope, both the rope and your equipment last longer, cost less to operate. Macwhyte consulting engineers will check your equipment and recommend the wire rope specifically engineered for your job. Ask your Macwhyte distributor, or write Macwhyte Company.

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**WIRE ROPE**
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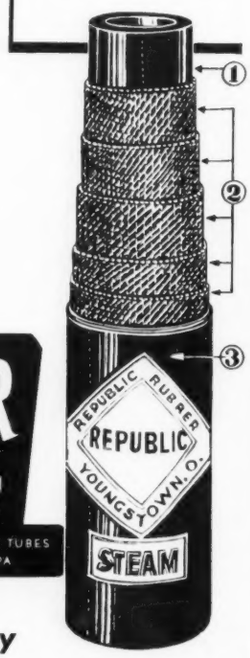
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THE MOST advanced principles of hose design, highest quality materials are combined in Republic Steam Hose to offer longest hose life with the maximum degree of safety for workmen. For each type of service, there is a Republic hose built specifically for the job, with strength and other safety factors far in excess of requirements. Thus, the recommended Republic grade for your needs assures dependable handling of maximum working pressures throughout its intended length of use. Where operating conditions are unusually severe, Republic Steam Hose with braided asbestos reinforcing plies is available. For excessive mechanical abuse, external wire winding is recommended. Contact your nearby Republic Distributor.

1. Thick tube of special rubber compounded for high heat resistance and ability to retain flexibility.
2. Plies of strong, hard-woven duck, equalized by applying on a bias for maximum pressure resistance and insulated against heat by impregnation with special rubber.
3. Heavy, abrasion-resistant cover takes endless punishment and external wear.



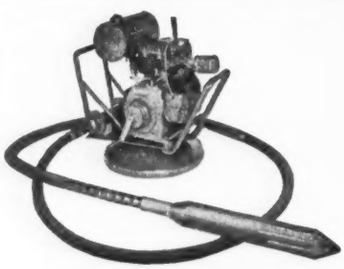

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LEE DELUXE TIRES AND TUBES
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*More Service from Rubber for Industry*



Concrete

## VIBRATORS

Gasoline Engine or
Electric Motor Driven
**CONCRETE GRINDERS**

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**FRONT END SHOVELS**
*for Industrial Tractors*

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*for Asphalt and Tar*

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*for Stone and Sand*

**ASPHALT PLANTS**
*Portable — Stationary*

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White Mfg. Co.

ELKHART INDIANA

## RENT A THOMAS HOIST

For Your Building Jobs
Direct From the Manufacturer

For 70 years, Thomas built hoists have been designed for dependable, economical service.

***Now available — in Stock***

The Thomas patented "Band Friction" grips positively, releases easily—ELIMINATES OPERATOR FATIGUE. The Thomas patented "Back-Up" brake requires no power, sets and releases automatically. QUICKLY INTERCHANGEABLE PARTS, and PROMPT, DEPENDABLE SERVICE means Thomas Hoists *Keep the job going.* One, two or three drum hoists up to 100 H.P., gasoline or electric powered.

***Write NOW for NEW FOLDER showing in detail the trips per hour normally obtainable with the various types of Thomas Hoists that are engineered to fit a particular job.***

**THOMAS HOIST CO.**
225 Hoyne Avenue, Chicago 12, Ill.
Phone Seeley 0303


**Condenser Service & Engineering Co., Inc.,** announce the opening of a fully equipped plant for development work and metal spray at 601 Newark St., Hoboken, N. J. The company has been engaged in metal spray work for the past 15 years.

**A large oil painting of Julius P. Heil** was recently unveiled at Wisconsin's capitol in Madison. The portrait was the gift of friends who were associated with Mr. Heil during his two terms as governor. Mr. Heil is chairman of the board of the Heil Co., Milwaukee, Wis.

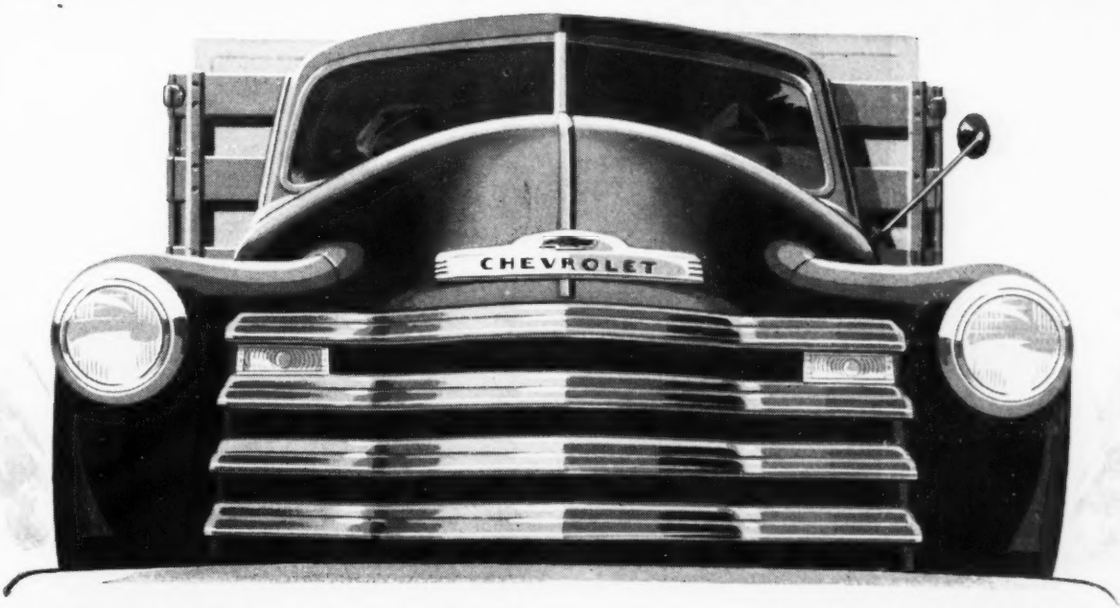
**The Asphalt Institute** has announced the appointment of **Herbert Spencer** as district engineer for New York and New Jersey to provide more intensive engineering coverage in the metropolitan area. He continues as secretary of the Institute. The Institute also elected **Wallace D. Craig** of Standard Oil Co. of New Jersey as vice-president of Division I, comprising the Atlantic-Gulf territory.

**Recognition** of the earthmoving industry in future national emergencies is indicated by the election of **Roy E. Choate,** president of LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa, as the director of the Quad-Cities-owa Post, Army Ordnance Association. The civilian activities of this program are centered around the work of the Army Ordnance Association whose members include the principal industrial leaders of the country. It works closely with the armed services and the Army-Navy munitions board in making known the latest scientific and mechanical knowledge keeping them informed of new products and developments, and appraising the overall manufacturing facilities of the country in the event of national emergencies.

**The appointment** of Industrial and Marine Equipment Corp., 1001 Sibley Tower Bldg., Rochester, N. Y., as distributors of General Motors Series 71 marine and industrial diesel engines has been announced by the Detroit Diesel Engine division, General Motors Corp. It is headed by **Alvin E. Alvey.**

**Thomas L. Kelly** has been named structural field engineer of the Portland Cement Association for western New York, with headquarters in Buffalo. Before joining the association in 1946, he served for 2½ yr. with the U.S. Navy in the Pacific as engineering officer and company commander with a construction battalion.

## *With men who know trucks—THEY CARRY THE WEIGHT!*




# CHEVROLET *Advance-Design* TRUCKS

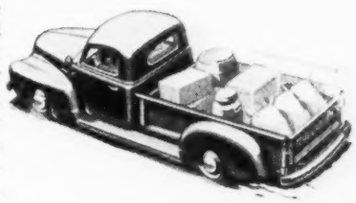
**With experienced truck users, Chevrolet's new line of ADVANCE-DESIGN trucks definitely *carries the weight*—by preference and pounds! They're new . . . they're ahead of the times with *Advance Design* and the cab that "breathes"—that almost literally "inhales" fresh air and "exhales" used air.* Here's profit-power and performance, plus new features and innovations well worth seeing—well worth owning!**



**THE CAB THAT "BREATHES"**—fresh air is *drawn in* from the outside—heated in cold weather—and used air is *forced out!*

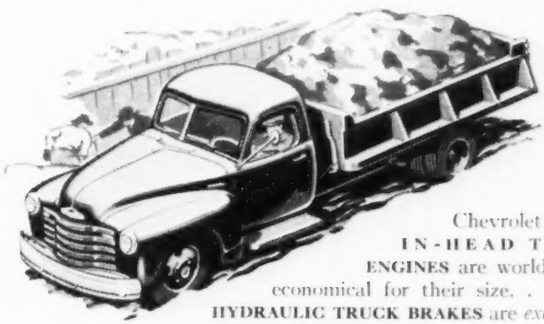
The cab is **FLEXI-MOUNTED**—cushioned on rubber against road shocks, torsion and vibration! . . . **DRIVER'S COMPARTMENT** is wider, with more leg room. The seats are fully adjustable, bigger and more comfortable. Wider, deeper **WINDSHIELD** and **WINDOWS** increase visibility by 22%!

Panels and pick-ups have **INCREASED LOAD SPACE**—stake and high rack bodies **MORE EFFICIENT LOADING.** . . . New, stronger, sturdier **FRAMES** are designed to carry greater loads greater distances for a longer time!





**LONGER WHEEL-BASES** give better load distribution. . . . Chevrolet's famous **FULL-FLOATING HYPOID REAR AXLES** are geared for the load!



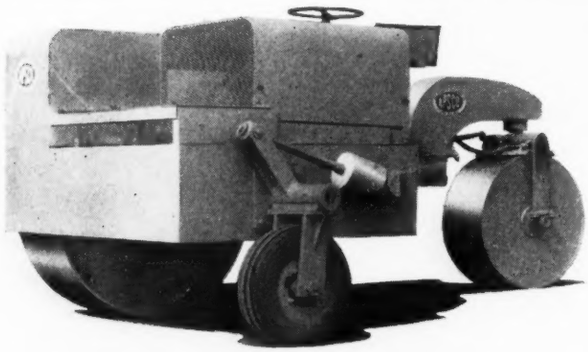
Chevrolet **VALVE-IN-HEAD TRUCK ENGINES** are world's most economical for their size. . . . The **HYDRAULIC TRUCK BRAKES** are *exclusively* designed for greater brake-lining contact!

**Fresh-air heating and ventilating system optional at extra cost.*

**CHOOSE CHEVROLET TRUCKS FOR TRANSPORTATION UNLIMITED!**

CHEVROLET MOTOR DIVISION, *General Motors Corporation*, DETROIT 2, MICHIGAN

# APSCO Trench Roller



● This new machine features a pneumatic tired leveling wheel with powered screw-type leveling unit for adjustment. This pneumatic tire serves a dual purpose. The elasticity of the tire prevents roller from damaging forms when leveling wheel hits an obstruction and the wheel also eliminates side slipping when loading on a carry-all or railroad car. Automotive type steering gives greater maneuverability—turns in 45° radius. Roller has two speeds forward and a reverse. Front roll 15" wide, rear 18" wide.

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**THE ALL-PURPOSE SPREADER CO.**
FULLER ROAD . . . ELYRIA, OHIO



*Get a Line* on an Owen!

OWEN CLAMSHELL BUCKETS INSURE A BIGGER DAY'S WORK

*with a* MOUTHFUL AT EVERY BITE

**For faster digging, ease of handling on difficult jobs and lowered operating costs, "get a line on an Owen Bucket".**

**Owen designs and builds to meet your every general or specific requirement.**

**The workings of an improvement-conscious engineering department are evidenced in field performance everywhere on dredging, excavating and material handling jobs.**



THE OWEN BUCKET CO.
6020 BREAKWATER AVE., CLEVELAND, O.
BRANCHES: New York, Philadelphia, Chicago, Berkeley, Cal.

*Write* FOR THE NEW CATALOG


**The Highway Co.,** Zionsville, Ind., announces completion of a plant here for processing and blending Trinidad asphalt. It will serve Iowa, Missouri, Illinois, Indiana, Kentucky, Michigan, Wisconsin and Tennessee.

**Leonard A. Hendrickson** has been appointed as midwest regional representative of Clyde Iron Works, Inc., with headquarters at Chicago. **John Van Zandt** has been transferred to the home office at Duluth.

**Four new personnel assignments** within the distribution division of the Cummins Engine Co., Inc., Columbus, Ind., have been announced: **S. J. Coffey** has been appointed manager of regions; **Byron A. Duling** has been appointed manager of engine distribution with headquarters at Columbus; **Raymond Boll** has been appointed assistant manager of the Cleveland region; **W. C. Phillips** is made assistant manager of the Southeastern region.

**In the interest** of centering manufacturing facilities on its principal lines, Gardner-Denver Co. has sold its governor business to the Wiebmer Machine Shop of Quincy, Ill. Gardner-Denver will henceforth concentrate on its expanding business in rock drills, air compressors, pumps and other allied products.

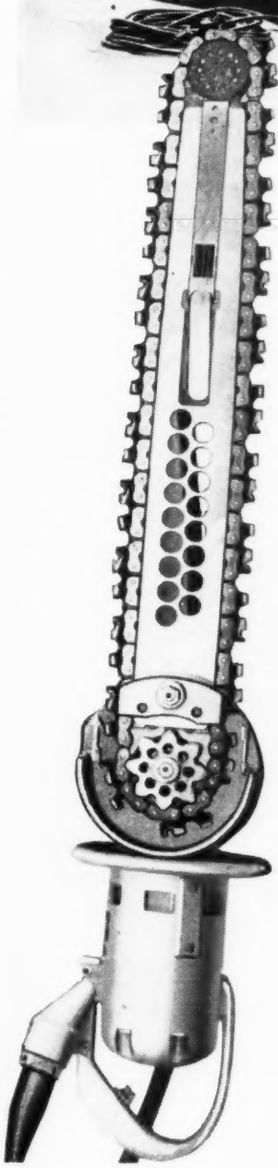
**J. S. Turner,** formerly retail manager of International Harvester Co. at Little Rock, Ark., has been appointed assistant manager at Wichita, Kan. motor truck branch.

**Thomas B. Moule,** who served as assistant director of sales in the Los Angeles office of the Plomb Tool Co. for the past three years, has been assigned to supervise Plomb's expanded sales organization in the eastern half of the United States. His headquarters temporarily will be at 549 W. Washington St., Chicago, Ill. **Jack G. Allen** will take over the duties previously handled by Mr. Moule and supervise the export department.

**George H. Gleeson,** manager of water meter sales for the Pittsburgh Equitable Meter Division, Rockwell Manufacturing Co., Pittsburgh, Pa., has announced that volume production has again been attained in the manufacture of the well-known line of Pittsburgh Imo meters. The Imo Type 2 meter is manufactured by the Pittsburgh concern under license from Aktiebolaget Imo-Industri, of Sweden. It is of the rotary, screw-propulsion type.

# ATKINS CHAIN SAW Plus ONE Man





**ADD UP TO SPEEDIER, EASIER PRODUCTION**

Check all these features listed below, and it's easy to see why more and more contractors and engineers are using this Atkins One-Man Chain Saw —why it saves them time and dollars on all types of jobs:

★ **Light weight**—easy to handle, the saw weighs only 52 pounds.

★ **Ruggedly built**—strong enough to stand up under the toughest jobs.

★ **Self-feeding**—"bearing down" not necessary because the saw automatically feeds itself into wood.

★ **Ample sawdust carrying capacity.** Cutter chain of special patented design cuts shavings similar to those made by a planer, dropping them behind into the gullet space ahead of next link.

★ **Depth gage teeth** prevent chatter or tipping the teeth as they pass through the cut. Design of teeth makes for easy sharpening with a file, a vise and a simple gage.

★ **Safety**—all working parts and electrical connections are sealed against moisture.

And remember, too, this saw is built for long, maintenance-free operation. All moving parts are dynamically balanced at a speed of 20,000 RPM to assure vibrationless operation, fewer repairs and longer life. Write for full information.

**E. C. ATKINS AND COMPANY**

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***Branch Factory:*** **Portland, Oregon**

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**For Resurfacing Secondary Roads and City Streets** *Also for* **New Construction**

## THE H & B MOTO-PAVER

• The H & B Moto-Paver is especially adapted for resurfacing secondary roads and city streets, but is also highly efficient on new construction. Here, for the first time, is a self-contained, single-unit machine which accomplishes the entire mixing and laying job in one continuous operation. The Moto-Paver delivers the mixed material spread and struck off on the road surface, ready for rolling. Paving width is adjustable from 8′6″ to 12′0″, and thickness up to a maximum of 7″. The strike-off blade is adjustable to hold accurately to specified grade and crown.

The Moto-Paver has been successfully operated using gravel, stone or slag aggregates, and with most types of emulsions, RC, MC and SC asphalts and tars. Illustrated bulletin giving complete information and specifications will be sent on request.

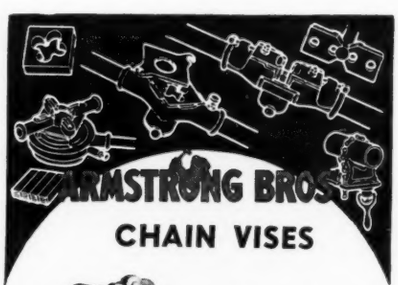
**HETHERINGTON & BERNER INC.**
**735 Kentucky Ave., Indianapolis 7, Ind.**

H&B Moto-Paver
THE COMPLETE TRAVELING MIXER AND PAVER


**With a demand** for Friden calculating machines calling for immediate expansion of plant facilities, company officials in Oakland, Calif., found it necessary to construct a building where one already existed. Using knee angle truss construction, holes were cut in the roof of a building temporarily thrown up during the war. The contractor could proceed with erection of the new 411 x 75 ft. steel frame structure without upsetting production in the plant itself. Four more buildings must await release of material for completion.

**Harry W. Hobson,** who started with the Du Pont Co. as a stenographer 44 years ago and rose to be assistant director of sales in the company's explosives department, has recently retired. **George H. Loving** will assume Mr. Hobson's duties as assistant director of sales, and **J. A. Dallas,** assistant manager of the Huntington, W. Va., sales office, will succeed Mr. Loving as assistant director in charge of chemical and miscellaneous sales.

**Production** of plate glass is being resumed at the Rouge plant of the Ford Motor Co. The first glass is expected to pour through the rolls about Sept. 1.

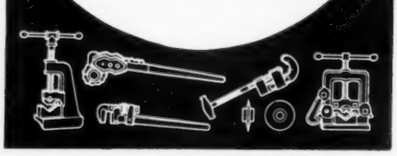

**CHAIN VISES**



Light and compact enough to go in the tool bag, strong enough and with capacity range to hold anything from small tubing to really large pipe and fittings, these vises are ideal for shop, or on-the-job use. All large parts are drop forged steel, small parts are hardened, chains proof-tested. The smaller vises have patented, 1-piece (bridged) jaws that permit a secure hold without danger of kinking even smallest pipe.

*Write for Chain Vise Circular*

**ARMSTRONG BROS. TOOL CO.**
**334 N. Francisco Ave.**
**Chicago 12, Illinois**
NEW YORK SAN FRANCISCO



**United States Pipe & Foundry Co.,** Burlington, N. J., announces the following sales department changes: In the San Francisco office, **A. Raymond Hausmann** has been appointed Pacific Coast sales manager and **P. King Farrington,** assistant Pacific Coast sales manager. In Chicago **Carl N. Brown** has become Western sales manager and **J. Leslie Hart,** assistant Western sales manager. In Birmingham, **Thomas W. McCreery** is Southern sales manager and **Robert C. Lemert,** assistant Southern sales manager.

**Robert C. Koehring** has been appointed manager of the portable products division of the Herman Nelson Corp., Moline, Ill., manufacturers of heating and ventilating products. He will coordinate the activities of all departments of the company to further the development and marketing of its line of portable products.

**Production** of hardboards will be increased substantially when Masonite Corp. puts a new mill unit into operation in the near future at its Laurel, Miss., plant. Opening of the new unit will supplement the output of three units already in operation and provide jobs for about 400 additional employees.


TO COPE WITH LOW HEADROOM PROBLEMS



rely on

ROGERS

GIRDER TYPE TRAILERS

• This trailer is ideal for moving large cranes and shovels long distances at high speed.



ROGERS BROTHERS CORPORATION

220 Orchard Street

ALBION, PA.

• EXPERIENCE builds 'em

PERFORMANCE sells 'em

ROGERS HEAVY DUTY Gooseneck Trailers



5 YEARS DEVELOPMENT

ON FIELD TESTS IN EVERY TYPE OF PROSPECTING AND STRIPPING THROUGHOUT THE WORLD.



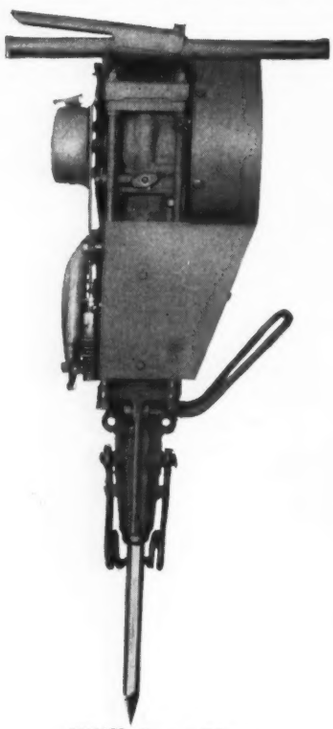
The Parmanco Single Speed Transmission Drill is designed to meet the requirements of the general prospecting field where it is not necessary to drill in solid limestone. Special sliding frame permits drilling and pulling of augers without moving drill. New design of chuck eliminates all hand operation in raising power plant. Recommended for 50 to 60 feet with four and one-half inch equipment. Under favorable conditions it is being used to greater depths.

PARIS MANUFACTURING COMPANY

PARIS, ILLINOIS

IT'S POWERFUL
IT'S SELF-CONTAINED

THE
*SYNTRON*
Gasoline Hammer
**PAVING BREAKER**



*Will Save You Money and Time*

**BUSTING**
**CUTTING**
**DIGGING**
**TAMPING**
and a host of other jobs.

100% Self-Contained
No Compressor, No Hose
No Battery Box, No Cable.

*Write for illustrated folder.*

**SYNTRON CO.**
**500 Lexington, Homer City, Pa.**

**Iron & Steel Products, Inc.,** Chicago, Ill., dealers in used railway equipment, machinery, relaying rails and allied lines, have appointed **Basil Fenn-Anstruther** representative in California, Nevada, and Arizona, with headquarters at 416 West Eighth St., Los Angeles 14, Calif.

**An increase** in supply of double-glazed picture windows of standard size for residential construction was announced today by the Pittsburgh Plate Glass Co. Installation of new manufacturing equipment and improvements in production and processing facilities makes the increase possible.

**A new distributor** of Ferro-Therm steel insulation to cover midwest and central states areas was announced by American Flange & Manufacturing Co., Inc., with the setting up and appointment of Midwest Ferro-Therm Distributors, Inc., at 9 South Clinton St., Chicago, Ill. **William J. Donahoe,** president, will be assisted by **Sidney Frisch, William N. Alderman** and **Arthur C. Heimerdinger.**

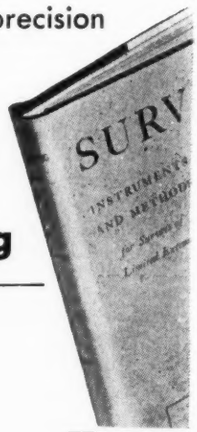
**U. S. Steel Supply Co.,** Chicago, Ill., a subsidiary of U. S. Steel Corp., will extend its operations to the West Coast with a warehouse in Los Angeles. **Clifford W. Lord** is appointed manager. With a warehouse at 2087 E. Slauson St., U. S. Steel Supply will carry a complete line of steel and allied products.

**Assignment** of Permanente Cement Co. as operator of Pacific Coast Cement Co's. Seattle plant facilities has been announced by General Construction Co., lessor of the cement plant. Permanente will manufacture cement there through February, 1948. The Seattle plant will be known as the company's Diamond division and will increase by 1,000,000 barrels Permanente's San Jose, Calif., plant production of 5,500,000 barrels annually. **Gordon Tongue** is manager.

**Industrial Models,** Arden, Wilmington, Del., is a new company formed of engineers with design experience to produce scale models of industrial plants; the models are complete, including buildings, equipment and piping.

**About 75 professors** of mechanical engineering from the leading colleges in the United States have witnessed a field test run of International Harvester Co.'s new 36,000-lb. TD-24 crawler tractor during a day-long session at the company's diesel engineering facilities in Chicago.

**Now . . .**
*a guide to precision*
*in*
**small area surveying**



For Architects—
Builders—
Industrial and
Civil Engineers—

Here is a new manual to help you in all types of surveying in the field and shop. Whether you are aligning machinery, planning construction, setting a jig, or making a map, this book will show you the most accurate and rapid methods of surveying the job. The complete subject is covered thoroughly—from the care and use of the instruments and equipment, to practical methods for solving hundreds of specific problems.

**Just Published!**

**SURVEYING**
**INSTRUMENTS and METHODS**
For Surveys of Limited Extent
***By PHILIP KISSAM***
*Associate Professor of Civil Engineering, Princeton University Chairman, Executive Committee, Surveying and Mapping Division, ASCE. 384 pages, 261 illustrations, $3.50*

In this helpful guide you are taken carefully, step-by-step, through all phases of small area surveying. It shows in clear detail the use of the transit, level, alidade and other instruments, and explains how to use them in measuring angles and lines, computing slopes, setting gauge points on jigs, aligning shafts, leveling and centering work projects and in many other ways in the field and factory. This is a book by a practical surveyor, designed to make your work easier and more accurate.

**Covered in detail in this book:**

- Surveying instruments
- Surveying methods
- Precise measuring procedures
- The transit, alidade and level
- Angle measurement
- Bench mark leveling
- Profile leveling
- Line and grade construction
- Alignment in the shop
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- Topographical surveying
- Technique of map-making

Logarithms of numbers, trigonometric functions and stadia reduction tables

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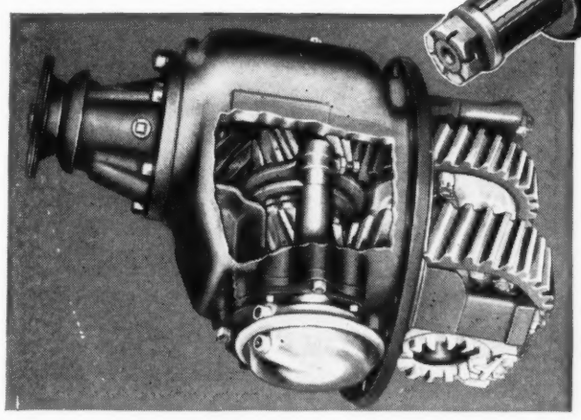
TIMKEN 3 for 1 AXLES

THE FINAL ANSWER TO FINAL DRIVE PROBLEMS

Another reason why!



Husky gear train of Two-Speed Hypoid-Helical Final Drive.



Cutaway view of Timken Two-Speed Easy-Power Shift. Unit may be either vacuum or compressed air actuated. This exclusive Timken unit is integral with the axle—not tacked on to the outside where it would be exposed to water, ice, dust and flying gravel. Note: There are no outside connecting rods or linkage to go wrong.

# 2-SPEED HYPOID-HELICAL FINAL DRIVE

## . . . with Easy-Power Shift

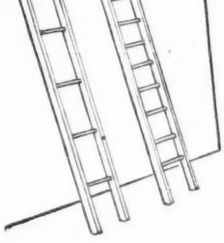
**BROTHER,** it's a blinger!

**THIS TIMKEN** Two-Speed Hypoid-Helical Final Drive *downs* your maintenance cost and *ups* your schedules, because it makes available maximum pulling power and maximum road speed *in the same truck.*

**A FLICK** of the finger and a momentary release of the accelerator – and all the strong-arm work of shifting axle gears is done for you!

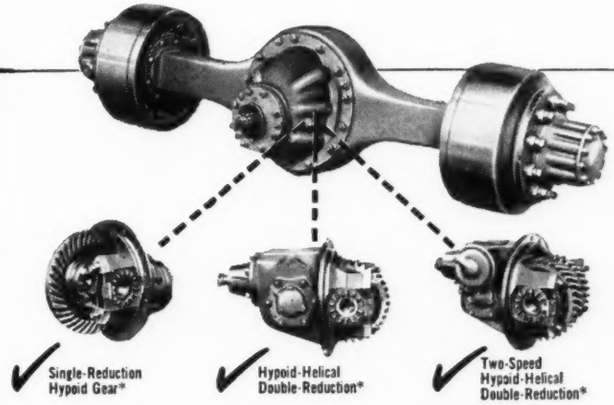
**YOU GET** double the number of speeds as compared with a conventional axle. You get exclusive Timken Hypoid "High-Performance" Gearing combined for the first time with helical spur gearing; a new, larger, stronger hypoid pinion mounted in a removable pinion cage; larger, stronger bearings – plus Advanced-Related Design and a high degree of parts interchangeability found only in new Timken "3 for 1" Axles.

Like it? Specify a Timken "3 for 1" Axle with Two-Speed Final Drive and Easy-Power Shift under the next trucks you buy!



### DOUBLES GEAR COMBINATIONS

The Timken Two-Speed Axle supplies the missing rungs in your ladder of truck performance—bridges the big gaps between ratios provided by "single-speed" axles. You get 8 speeds forward instead of 4, 10 instead of 5, or 12 instead of 6, depending upon the number of transmission speeds.



✓ Single-Reduction Hypoid Gear*

✓ Hypoid-Helical Double-Reduction*

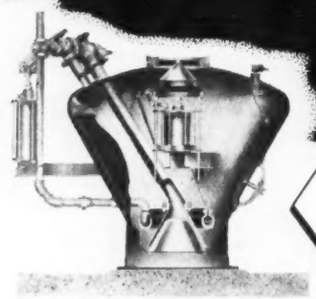
✓ Two-Speed Hypoid-Helical Double-Reduction*

*INTERCHANGEABLE IN SAME AXLE HOUSING USING THE SAME AXLE SHAFTS

# TIMKEN 3 for 1 AXLES

**THE TIMKEN-DETROIT AXLE COMPANY**
DETROIT 32, MICHIGAN
WISCONSIN AXLE DIVISION, OSHKOSH, WISCONSIN
TIMKEN AXLE BRAKE DIVISION, DETROIT, MICHIGAN

ROBINSON *Air-Activated* CONVEYOR



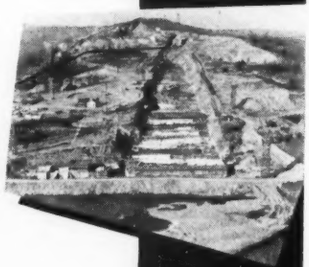
THE PNEUMATIC CONVEYOR THAT'S *Different*

"*Float*" CEMENT FROM SIDING TO MIXING PLANT AND *REDUCE COSTS*

Notice we didn't say "blast"... that comes when you have to use high pressure air. The Robinson System uses relatively low pressure air. The system is much simpler. There are no "power moved" parts in the system to get out of order and cause time lost and high maintenance.

The Robinson "Air-Activated" Conveyor has been used successfully on several large construction projects for moving cement from siding to mixing plant. The longest travel was about 3500 feet; the greatest elevation about 425 feet.

Look into the Robinson System for your next big job. It has much to offer in the way of reducing costs.



**ROBINSON *Air-Activated* CONVEYOR SYSTEMS**

*Division of* **MORSE BOULGER DESTRUCTOR CO.**

**211-C East 42nd Street • New York 17, N. Y.**

*Representatives in Principal Cities*

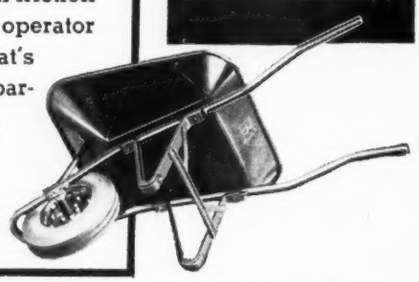


*Down Hill* **ALL THE WAY!**

Sterling barrows wheel so easily, they make it seem like going down hill all the way. Lightweight... well-balanced ... equipped with modern, anti-friction bearings, Sterlings relieve the operator of fully 80% of the load. That's why they are the preferred barrow in all types of industries.

**The demand for Sterlings continues to exceed the supply. Deliveries, however, will be stepped up as rapidly as conditions permit.**

*Well Balanced* FOR EASY WHEELING!



**STERLING WHEELBARROW CO., Milwaukee 14, Wis.**

Look for this Mark of STERLING Quality

*Sterling* WHEELBARROWS




**The following changes** in sales personnel of Bethlehem Steel Co. have been made: **J. M. Ellis,** appointed assistant to vice-president; **K. L. Griffith,** general manager of sales; **D. C. Roscoe,** assistant general manager of sales; **A. T. Hunt,** manager of sales, sheets and strip; **M. C. Schrader,** assistant to the vice-president.

**The Cummins Engine Co., Inc.,** Columbus, Ind., announces the following action by the board of directors: **R. E. Huthsteiner,** vice-president and general manager, was elected a director; **Edwin G. Crouch** was elected secretary; **Waldo M. Harrison** was elected treasurer and will continue as controller. The resignation of **H. L. Knudsen** as vice-president of engineering was accepted with regret.

**Col. A. E. (Cappy) Higgins** has been named vice-president of the Rockwell International Corp., New York City, it was announced by the Rockwell Manufacturing Co., Pittsburgh, the parent concern.

**Announcement** of the opening of new sales and executive offices at 1106 West 35th St., Chicago, Ill., was recently made by the C. R. Jahn Co., manufacturers of heavy-duty, low-bed trailers. Factory and accounting offices will remain in Savanna, Ill.

**Window Corporation Sales, Inc.,** New York, N. Y., announces the election of **P. Schuyler Van Bloem** as president.

**L. L. DeWolfe** has been named superintendent of marine erection for the Babcock & Wilcox Co., Barberton, Ohio, succeeding **M. Nielson,** who becomes production superintendent of the Barberton works.

**New vice-president** in charge of sales of the Joy Manufacturing Co., Pittsburgh, Pa., is **E. M. Platts.**

**Keystone Asphalt Products Co.,** a division of the American-Marietta Co., has made the following appointments: **James E. Poole** has been made sales manager of the paving products division; **Bryant W. Pocock** has been named research director; **William C. Allen,** of Dallas, and **Merle L. Cripe,** of Chicago, will serve airport, highway, and building material users throughout the East, Midwest, and Southwest.

**Byron Jackson Co.,** Los Angeles, Calif., has announced completion of its new $1,500,000 plant for production of centrifugal pumps for industrial, municipal and agricultural use.




# for Safe, Easy Operation



Husky, powerful machines . . . built to handle the most difficult work . . . yet, with OSGOOD Air Control, operating an OSGOOD is simple and easy. A bank of five hand levers and two foot pedals, all within convenient reach of the operator, provide safe, positive control of the principal operations of an OSGOOD.

And OSGOOD Air Control is measured—low pressure for smooth, even operation, high pressure for powerful, steady travel. Here's ease of operation that means more work, in less time, on any job. Plan now to choose an OSGOOD . . . a complete line of power shovels, draglines, cranes, clamshells, backhoes and pile drivers . . . a model for every type of work.

POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

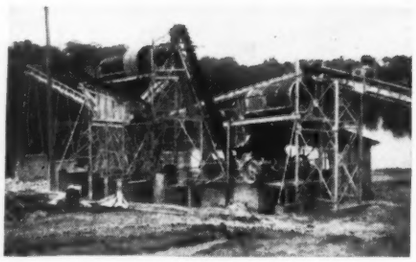
THE OSGOOD CO. O-G THE GENERAL CO.
EXCAVATOR

MARION OHIO

DIESEL, GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

*Crush Your Own Rock*

**Reliance** EQUIPS *your* JOBS



**RELIANCE PRODUCTS**

Rock Crushers, Bucket Elevators, Revolving Screens, Storage Bins, Pulverizers, Chip Spreaders, Heating Kettles, Bin Gates, Feeders, Belt Conveyors, Grizzlies, Air Separators, Sand & Gravel Spreaders, Wash Boxes.

Rather than face the delay and expense of rail or highway shipments of crushed stone, gravel and sand, *install your own plant* and save both time and money.

We'll gladly refer you to contractors who are making money and rushing their work with RELIANCE Equipment.

*Write for the latest RELIANCE Bulletins.*

**UNIVERSAL ROAD MACHINERY CO.**
Kingston, N. Y., U. S. A.
DISTRIBUTORS IN ALL PRINCIPAL CITIES OF U. S. A.

*CONTRACTORS RUBBER PRODUCTS*
**available from Stock for immediate Delivery**

**CONVEYOR, ELEVATOR and TRANSMISSION BELTING**
**all widths and plys**

**V-BELTS all sizes**

**HOSE all sizes**

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|---|---|---|---|
| AIR | WATER | SUCTION | COMPRESSOR |
| FUEL | STEAM | WELDING | PILE DRIVERS |
| FIRE | VACUUM | DISCHARGE | ROAD BUILDERS |

and BOOTS, DREDGE SLEEVES, PUMP DIAPHRAGMS, ETC.

**and everything rubber for Industrial Requirements**

PHONE . . WIRE . . WRITE — Write for new catalog

**CARLYLE RUBBER CO., Inc.**
62-66 PARK PLACE NEW YORK 7, N. Y.
Phone: BArclay 7-9793


**United States Plywood Corp.** has purchased the G. A. Mason Door Co. of Milwaukee, Wis., and will continue the firm as a branch warehouse. The Mason company is a distributor of doors and other building specialties. **Glenn A. Mason** will continue as the manager of the Milwaukee branch office.

**Lone Star Cement Corp.,** New York, N. Y., announces the election of **Thorkild Avnsoe** as executive vice-president and **J. H. Leikhim** as vice-president and treasurer succeeding **A. V. Lemasters,** retired. The following appointments have also been made: **Claiborne C. Van Zandt,** chief engineer; **I. C. Brotzman** domestic operations manager; **N. M. DeBrun,** foreign operations manager; **Fred C. Schieber,** general superintendent, eastern division.

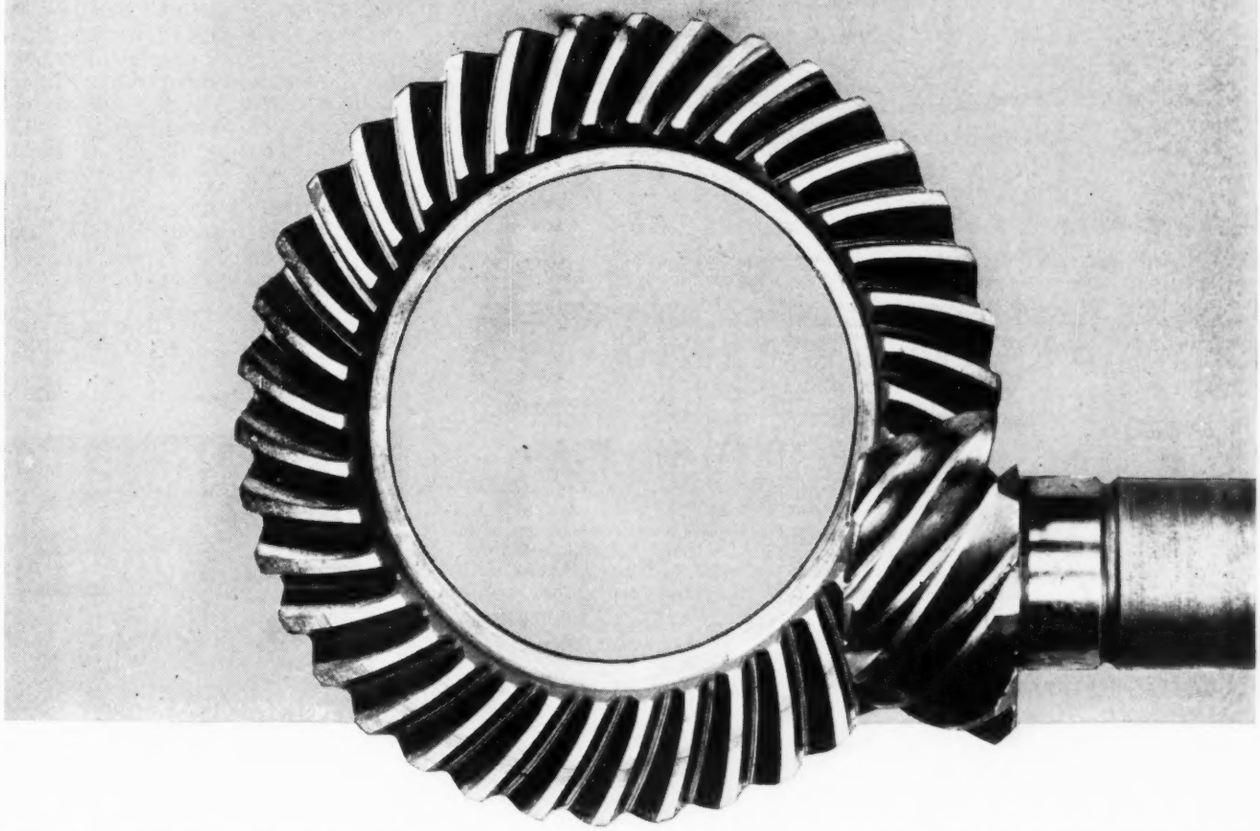
**Claude E. Harper** has been appointed assistant general manager of Standard Gypsum Co. of Calif., heading production operations at the company's newly opened Long Beach, Calif., gypsum lath and board plant. **Gil F. Richards** has been named sales manager.

**Pacific States Steel Co.** is installing four 75-ton capacity open hearth furnaces to more than double the raw steel output of its Niles, Calif., plant. The new facilities will add an estimated 140,000 tons to the 3,500,000 tons annual capacity of western plants. The furnaces were purchased from a governmental surplus steel plant in the Midwest.

**C. F. Mohrbacher** has been appointed as assistant sales manager of the Racine division of the Twin Disc Clutch Co. Other appointments include: **A. E. Young,** district manager of the West Coast territory; **E. H. Bennett,** district manager of the Eastern territory; **W. L. Dixon,** consulting sales engineer at Newark; **J. B. Jenkins,** district manager of the Michigan territory; **P. G. Tyrrell,** assistant district manager in the territory served by the new Los Angeles office; **P. W. Wahler,** assistant district manager in the territory served by the Seattle factory branch.

**Three changes** in personnel of district offices of SKF Industries, Inc., Philadelphia, are announced, including appointment of **Roy C. Norton, Jr.,** as a field engineer in the Hartford, Conn., district office; the transfer of **I. J. Torkelson,** field engineer, from Chicago to Milwaukee; and appointment of **R. M. Parrish** to the sales staff of the Portland, Ore., district office.

# Stop Gear Wear... in heavy duty bus and truck differentials with... NEW STANDARD HEAVY DUTY GEAR LUBRICANTS



BUS AND TRUCK POWER drives bear the brunt of punishing heavy duty service. Differential and final drive gearing can wear rapidly unless safeguarded against high temperatures and cushioned against heavy tooth loads. To provide added protection for these vital gear units, Standard Oil has developed the new Standard Heavy Duty Gear Lubricants.

Three grades are available, providing a range of lubricants to meet seasonal operating requirements in various heavy duty services. The No. 80 and No. 90 grades meet the exacting requirements of U.S. Army Specification 2-105B. The No. 140 grade, although not a part of this specification, passes the same performance tests as the other two grades. Each of these lubricants is made of a balanced blend of stable base oils of high viscosity index and contains a special additive. This combination produces a non-corrosive lubricant possessing excellent extreme pressure characteristics.

These all-purpose lubricants are particularly adaptable for use in truck and bus final drives—both hypoid and spiral bevel gears—but also have other recommended applications—transmissions, steering gears, fluid-lubricated universal joints, etc. A Standard Automotive Engineer will help you take advantage of this new line of maintenance-reducing gear lubricants.

Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

**STANDARD OIL COMPANY (INDIANA)** STANDARD SERVICE

# USE THESE AIDS TO BETTER *WORKING SAFETY* IN CONSTRUCTION



## M·S·A SKULLGARDS

Light weight, cool and comfortable to wear, these standard work hats of the construction industry are high-pressure molded of laminated bakelite—tough, resistant to fracture, and with high dielectric strength. Self-ventilated for coolness, Skullgards do not soften or deteriorate from exposure to weather, perspiration, oil or grease. Bulletin DK-13.



## M·S·A EYE PROTECTION

The full range of M.S.A. Protective Goggles guard eyes against job hazards. Spectacle-type goggles, chippers' goggles, welders' goggles and other types are sturdy, easy to wear and provide assured eye protection. Bulletin CE-29A.

## M·S·A SAFETY BELTS

Light, flexible and strong; furnished in shoulder-strap type which permits easy raising and lowering of workmen in confined places and through small openings—body pad type for workers on scaffolds, roofs, mountain-sides, etc., and special steel worker's safety belt. Made of high-tensile cotton webbing, with high quality hardware tested to 5,000 lbs. Write for details.





## M·S·A FIRST AID KITS

Sturdy steel All-Weather cases are equipped with molded gasket excluding dust, dirt and moisture—available in 10, 16, 24 and 36-unit sizes, each containing a complete assortment of unit-packaged first aid materials ready for instant use. Cases are equipped with brackets for wall or vehicle mounting. Descriptive details on request.

### M·S·A *Clear-Vue* DUSTFOE RESPIRATOR

Approved respiratory protection on dusty jobs—light in weight, easy to breathe through, comfortable to wear. Formable aluminum facepiece with molded face cushion assures snug fit; transparent plastic filter container shows filter condition at all times; filters are inexpensive, easily replaced. Bulletin CM-7.

### M·S·A CHEMOX* OXYGEN BREATHING APPARATUS

Provides oxygen for breathing protection in highly gaseous or oxygen-deficient atmospheres—employing a replaceable chemical canister which generates oxygen as the wearer breathes, for a minimum period of 45 minutes. No high pressure valves or fittings; weighs only 13½ lbs. complete. Bulletin BM-8.

**Trade Mark Registered*

### M·S·A EXPLOSIMETER

Accurately measures combustible gas hazards at the working place, with easy one-hand operation. Portable and sturdy, any workman can use it without special training. Large, legible dial; uses standard flashlight batteries. Bulletin DN-7.

### M·S·A CARBON MONOXIDE INDICATOR

Precisely indicates low, dangerous carbon monoxide concentrations in air of tunnels, tanks, and other confined spaces, safeguarding lives and health of workers. Direct reading meter has scale range from 0 to .15% carbon monoxide in air. Bulletin DS-3.

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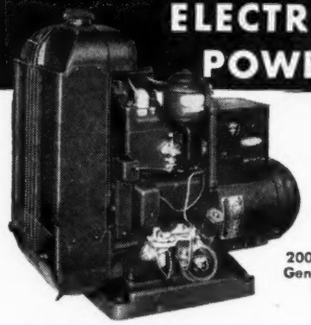
MONTREAL • VANCOUVER • CALGARY • WINNIPEG • NEW GLASGOW, N. S.


**William A. Roberts and William C. Johnson** have been appointed executive vice-presidents, respectively, of the tractor and general machinery divisions of the Allis-Chalmers Manufacturing Co. Two new vice-presidents for the two divisions of the company have also been appointed. They are **Marshal L. Noel,** vice-president and general sales manager for the tractor division, and **J. L. Singleton,** vice-president and director of sales for the general machinery division.

**Announcement** has been made of the formation of Railroad Siding Construction Co., Pittsburgh, Pa. Besides handling new sidings, the company will take contracts for maintenance and rehabilitation of old sidings and can also handle excavations in conjunction with any siding work. Work at present is being limited to Pennsylvania, Ohio, Indiana, New York, Delaware, Maryland and West Virginia.

**To meet increased demand** in Dayton and surrounding areas for acetylene for oxyacetylene welding and cutting process, the Air Reduction Sales Co. has opened a new acetylene plant there. The plant superintendent will be **R. K. Haygood.**


# DEPENDABLE ELECTRIC POWER



2000-Watt Generating Set

## FAIRBANKS-MORSE GENERATING SETS

**PERFORMANCE-PROVED** to meet your requirements. Capacities, 350 to 35,000 watts. Compact, single-unit design, sturdy construction. Give unfailing service even under continuous, heavy-duty operation. A.C. and D.C. types, remote and automatic start. Send coupon for FREE literature today!

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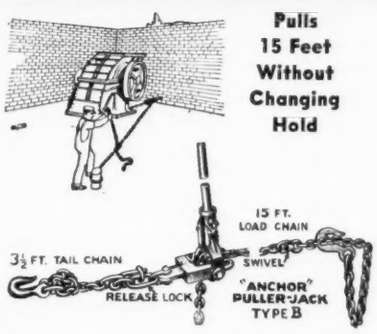
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**Brig. Gen. Hugh C. Minton,** who was named production manager of Koppers Co. Inc., on May 10, has been made a vice-president of the company.

**At a recent meeting** of the directors of The Celotex Corp. **Fergus A. Irvine** was elected vice-president in charge of production. The functions of purchasing and traffic have been combined under a newly created office of director of purchases and traffic, to which office **James W. Franklin** has been named. **P. D. Walsh** continues as general traffic manager and **Harry B. Cleveland** has been appointed general purchasing agent. **Richard H. Thompson** has been appointed assistant to the president.

**The appointment of Wallace B. Hunter** as senior contracting manager of the Chicago district was announced today by the American Bridge Co., U. S. Steel Co. subsidiary. Mr. Hunter will be in charge of all contracting work of the company in the Chicago district, including the contracting sub-office at Gary, Ind. **Newton O. Holt** will continue as contracting manager, Chicago district.


**One Man Moves 5 Tons with the ANCHOR Puller-Jack!**




**Pulls 15 Feet Without Changing Hold**

Here's a one-man gang that quickly repays its price in labor, time and money saved. Has 3 tons direct pulling power, or 5 tons with sheave block. Pulls 15 feet without changing hold. Can be operated upright, sideways or upside down, with lever pull away from load or toward it. Simple, strong, foolproof. Practically nothing to get out of order. Positive action, always holds. Compact, quick and easy to set up and use. Hundreds of uses for this powerful tool wherever heavy objects must be moved. Order an ANCHOR Puller-Jack today, or write for descriptive catalog.

**$57.50** F.O.B. Bowerston, Ohio. Jack complete with 3 ft. steel tube handle, 15 ft. load chain with slip hook, and release lock. Longer chains available.

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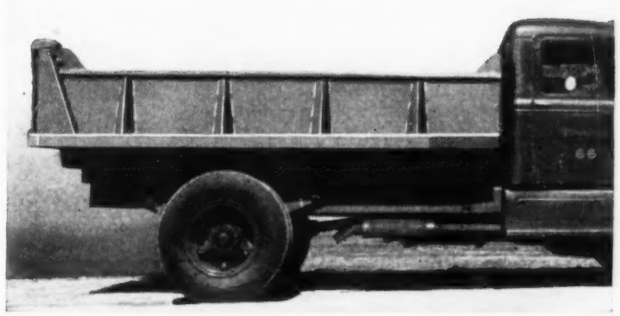


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**18C, 30C, 50C and 80C**



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The super power of Super-Vulcan produces greater penetration per blow, driving piles faster, easier, at less cost with twice the usual number of blows per minute.

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Get the power that produces penetration - plus. Write for full details on Vulcan.

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**J. G. West** has been promoted to sales manager of the Indiana division of the Lone Star Cement Corp., while **Harry E. Green** was named assistant treasurer of the division, which has offices in the Merchants Bank Building, Indianapolis. They succeed **J. H. Leikhim,** who has been elected a vice-president and treasurer of the company in New York.

**A two-year modernization** and expansion program will find SKF Industries, Inc., spending more than $4,000,000 to equip its two Philadelphia plants with new machinery capable in some instances of operating from two to six times faster than standardized equipment long used in the anti-friction bearing industry. While the bulk of the expenditures will go for new machinery required in the production of anti-friction bearings, the program is aimed primarily at stepping up production of spherical roller bearings.

**H. J. Philp** has been appointed assistant general manager of Eastern Steel Products, Ltd. Toronto, and its subsidiaries, the A. B. Ormsby Company, Ltd. and W. D. Beath & Son, Ltd.


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This new handbook treats all phases of handling carpentry work to meet FHA specifications

HERE at last is the one manual you can use to check on all the latest, FHA-approved methods of doing the carpentry work on frame houses and small residences. It gives you clear working instructions which you can easily follow for any phase of small building construction. Illustrated, and based on only the most efficient current practices, this manual helps you handle any phase of the work expertly, from framing, roofing and siding, to blueprint reading and safety measures. It shows you how to plan construction, select materials, and apply modern methods of carpentry to produce housing that's tight, sound and built to last, conforming to the latest FHA requirements.

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**188 pages, 147 illustrations, 6x9¼, $2.50**

This concise handbook carries you through every detail of small residence and frame house construction, giving you concrete instructions and readable working diagrams for each operation, whether it's setting a bearing post or nailing a shingle. You learn the best practices for framing, bracing, roofing, etc., and the advantages of each method so that you can apply the right one to your particular building problem.

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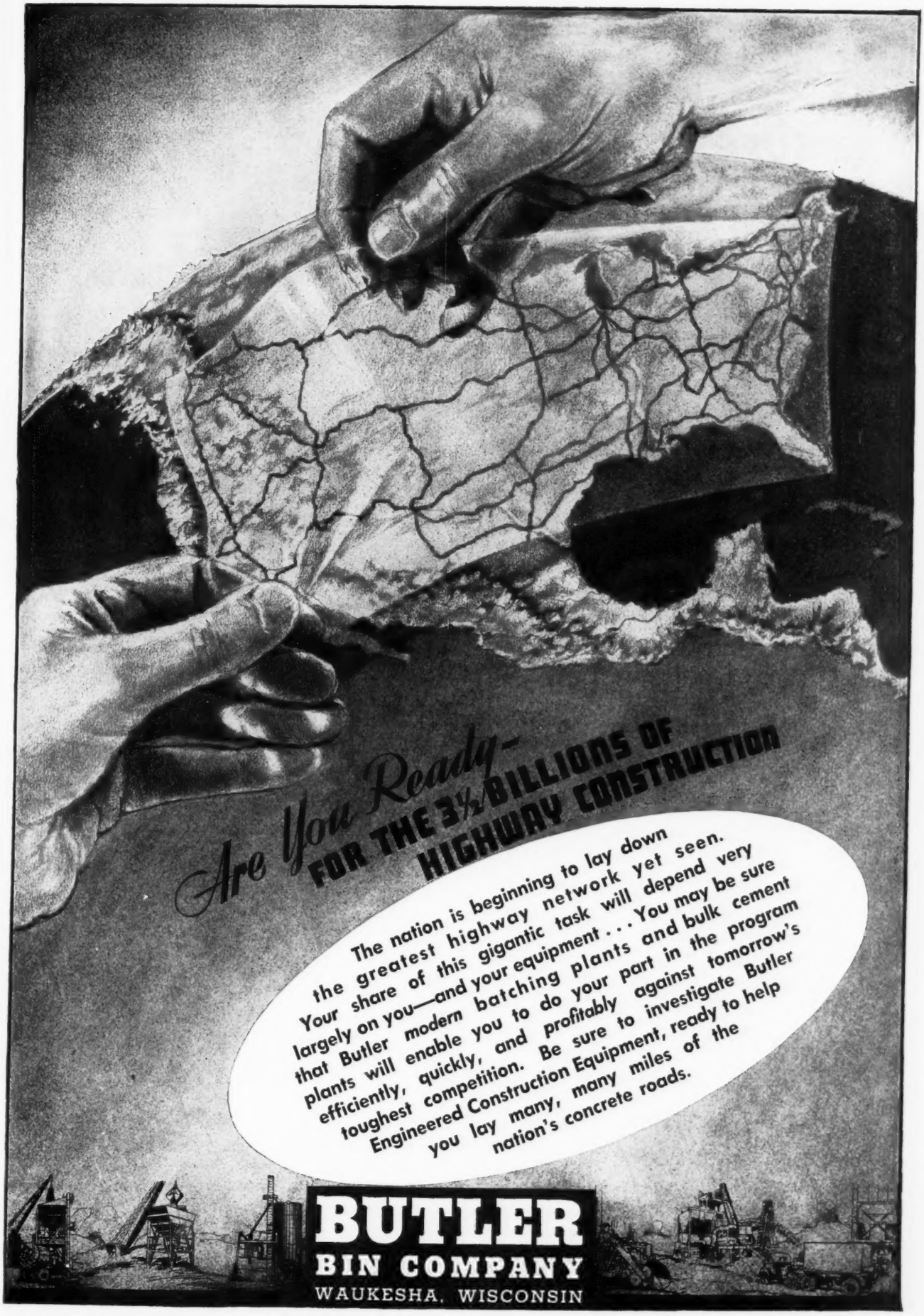
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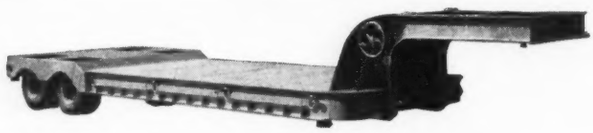
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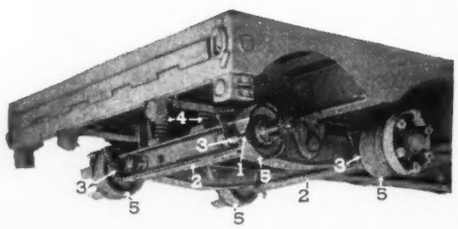
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The nation is beginning to lay down the greatest highway network yet seen. Your share of this gigantic task will depend very largely on you—and your equipment . . . You may be sure that Butler modern batching plants and bulk cement plants will enable you to do your part in the program efficiently, quickly, and profitably against tomorrow's toughest competition. Be sure to investigate Butler Engineered Construction Equipment, ready to help you lay many, many miles of the nation's concrete roads.
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**BE *SURE* YOUR NEXT TRAILER HAS ALL THESE FEATURES . . .**



Deep, wide flange main beams running the full length of the trailer, I-Beam sections for cross-members and outriggers, improved, fabricated gooseneck, and all electric-welded construction. Look at all the other features found only on Jahn tandem axles: (1) constant lift cam, (2) two full-width axles attached to longitudinal rocker beams, (3) worm gear type slack adjusters at each wheel, (4) heavy coil springs at each axle and (5) positive equalizing braking at each wheel regardless of position of axle.

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**Heavy duty trailers from 5 to 100 tons.**

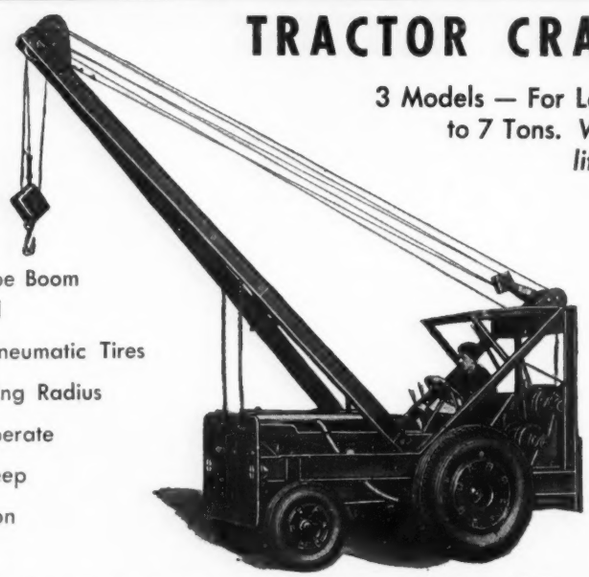
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**TRACTOR CRANES**

**3 Models — For Loads Up to 7 Tons. *Write for literature.***



Special Type Boom Designed
Solid or Pneumatic Tires
Short Turning Radius
Easy to Operate
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Clear Vision
Live Boom

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SALES REPRESENTATIVE
**MERCER-ROBINSON COMPANY, INC.**
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**Champion Manufacturing Co.,** manufacturer of masonry cutting saws and masonry cutting blades, has moved into larger, more modern quarters at 2028 Washington Ave., St. Louis, Mo. New quarters consolidate under one roof the general offices, fabricating and assembly departments, product research and engineering and warehousing.

**The growing demand** of Illinois industry, particularly in Macon County, was the reason for the opening of the new Air Reduction oxygen plant there recently. The new plant will supply oxygen to points formerly serviced by Air Reduction plants in St. Louis and Chicago. Another oxygen manufacturing plant was added at Baton Rouge, La., according to a recent announcement made by **L. A. Bruno,** Airco's district manager.

**H. K. Porter Co., Inc.** announced the promotion of **Harold A. Hintz** to Pacific Coast sales manager. He will direct the activities of all Porter sales offices on the Pacific Coast and will maintain headquarters in the Petroleum Building, Los Angeles. **J. F. Morley** has become district sales engineer at San Francisco.

**The Sawhill Manufacturing Co.** has recently completed a plant expansion program at Sharon, Pa. Sawhill specializes in the production of prefabricated pipe.

**George J. Stanley** has retired as vice-president and general sales manager for Aluminum Co. of America. He will continue as a director of the company. **Ralph V. Davies, Robert B. McKee** and **Donovan Wilmot,** assistant general sales managers for Alcoa, have been promoted to vice-presidents of the company. Mr. Davies will also become general sales manager succeeding Mr. Stanley.

**O. A. Schilling** has been named eastern sales manager of Goodyear Tire & Rubber Co.'s mechanical goods division, it was announced, succeeding **H. D. Foster,** who was recently appointed manager of the mechanical goods division.

**Establishment** of a sales office for the state of Texas, with **Harvey M. Harker** as general branch manager, was announced by the Monsanto Chemical Co. Headquarters of the new office, which will handle the company's products other than phosphates and plastics, will be in Houston.

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## the Unit Injector . . . heart of the MURPHY DIESEL . . .

A simple, positive, unit fuel injector for each cylinder of a Murphy Engine delivers an exact amount of completely atomized fuel at exactly the right time. No erratic injection, after dribbling, air-binding or other common faults are possible.

## THE MURPHY *is* a "True" DIESEL

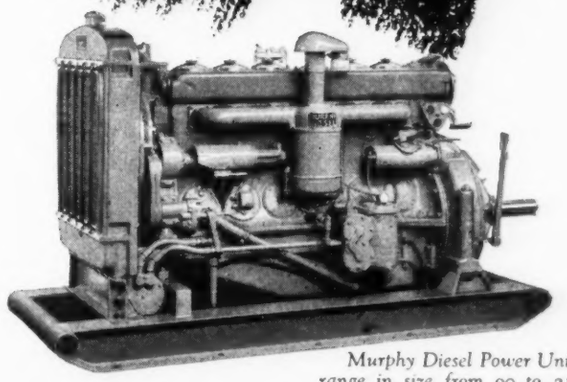
The Murphy Diesel Engine is a "true" Diesel operating on the principle of *controlled solid fuel injection* into an open chamber. Control of combustion is accomplished by *precise control* of the amount of fuel injected. This is the principle applied in the big, heavy, slow speed Diesels noted for their economy and dependability. It is not generally found in engines in the 90 to 215 H. P. size range.

This principle results in smoother operation, lower fuel consumption, lower lubricating oil consumption, lower temperatures of pistons and cylinders, greater sustained power output, less maintenance and easier starting.

Murphy Diesels are the most compact engines of their power rating suitable for heavy duty, continuous industrial service. They'll give you more output at lower cost. See your Murphy Diesel Dealer or write:

**MURPHY DIESEL COMPANY**
5339 W. Burnham St., Milwaukee 14, Wisconsin

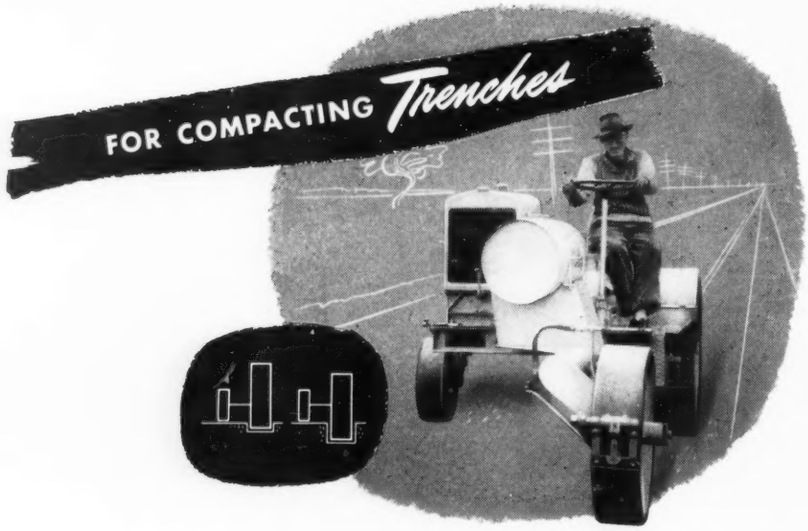
*The illustration above shows a 135 continuous H. P. Murphy Diesel powering a Cedarapids Master Tandem crushing plant owned by DuBois Brothers, Baraboo, Wis.*



*Murphy Diesel Power Units range in size from 90 to 215 H. P. Generator sets from 60 to 115 KW., A. C. or D. C.*

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**ENGINEERED FOR TOUGH SERVICE**




with a roller which is properly balanced, which is safe to operate without tipping, and which is designed specially for that job. A simple, hydraulically operated mechanism provides vertical adjustment for the road wheel so that the roller can be kept level when operating in the trench. This hydraulic unit is exclusive with Buffalo - Springfield trench rollers. Compressions exceeding 300 #/" of face can be obtained with this model. See your Buffalo-Springfield distributor for further details.

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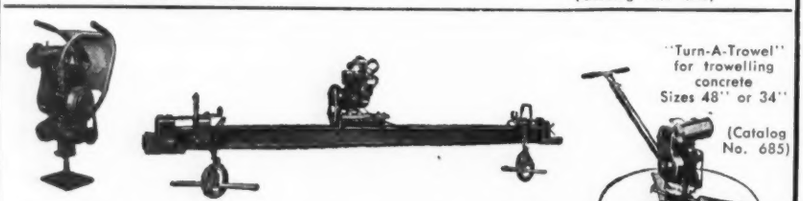
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Portable Gas-Electric Generator Plants. Sizes 500 to 17000 Watts (Catalog No. 594)

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DAYTON 1, OHIO


**Minneapolis - Honeywell Regulator Co.,** has formed a subsidiary company in Mexico. Marking the sixth foreign subsidiary organized by Honeywell, the new firm has been named Honeywell-Brown, S.A. All legal formalities have been completed, he said, and personnel engaged. Headquarters of the new company have been established in Mexico City. **Virgil H. Hiermeier** has been named manager.

**After 32 years' service, Walter L. Hempelmann,** consulting engineer of the Chicago division of The Texas Co.'s asphalt sales department, retired on Aug. 1. Prior to joining The Texas Co., Mr. Hempelmann served the city of St. Louis, Mo. for nine years.

**C. A. Fegtly** has been appointed manager and **F. W. De Klotz** sales manager of the Pacific Coast Division of Pittsburgh-Des Moines Steel Co., with headquarters at the company's new Santa Clara, Calif. fabricating plant.

**Appointment of John R. Johnston** as assistant general sales manager, Carnegie-Illinois Steel Corp., has been announced. He will be succeeded as sales manager in the Milwaukee district office by **Charles E. McIntyre,** who was formerly assistant manager of the Detroit district sales office.

**Doctor of Humane Letters degree** was conferred upon **E. J. Thomas,** Goodyear Tire & Rubber Co., president, at the 94th annual commencement exercises of Heidelberg College in Tiffin, Ohio.

**E. W. Ryder** has been promoted to parts manager for the eastern division of Caterpillar Tractor Co., Peoria, Ill. He replaces **C. D. Byrns** who resigned to join the Arizona Machinery Co., Caterpillar distributor. **W. E. Doersam** has been named assistant parts manager for the western division.

**Douglas M. Lyon** has been made sales manager of the Porter-Cable Machine Co., Syracuse, N. Y. succeeding H. L. Ramsay, who has been made vice-president in charge of merchandising.

**A new service branch** has been established at Charlotte, N. C. for the convenience of users of Black & Decker and Van Dorn portable electric tools. This is an addition to the 22 Black & Decker factory service branches at strategic points throughout the country.

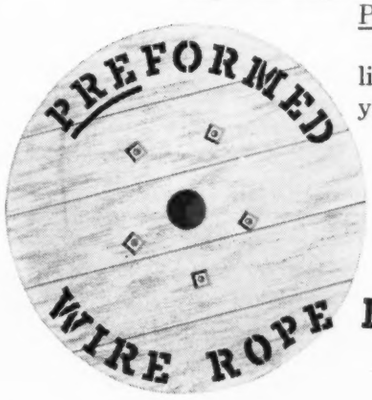



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● This crane erected on the job cost $41,000. But it can't do a nickel's worth of work until rigged with wire rope costing a fraction of that amount.

*The* wire rope used makes a big difference, yet for this job Preformed Wire Rope of Improved Plow Steel . . . the best there is . . . costs only about $300. Preformed permits faster, better work, with fewer shutdowns.

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**HANDLES EASIER - LASTS LONGER**

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T. M. Reg. U. S. Pat. Off.

**WORM DRIVE**

# HOSE CLAMPS

**WILL SAVE YOU MONEY**




**RUGGED!**

Sturdily built. Stainless steel or carbon spring steel. Rust resistant. Mechanically interlocked saddle. Worm gear drive. No loose parts. Vibration-proof. Unaffected by high or low temperatures and pressures. Uniform "squeeze" on hose. Greater band strength.

**FASTER TO INSTALL!**

Save time. Easily installed. No need to remove hose. Self-locking. Will not collapse thin wall hose.

**REDUCE MAINTENANCE COSTS!**

They "stay put". Leak-proof. Extra long take-up. Reduce inventory requirements. Keep equipment on the job. Use them for all air, fuel and coolant lines on trucks, tractors, pumps, mixers, compressors, power shovels, motor graders, etc. Write for FREE SAMPLE. You'll like "Aero-Seal".

**AIRCRAFT STANDARD PARTS CO., INC.**
1715 19th Avenue
Rockford • Illinois


**William D. Spears,** prominent Chattanooga attorney, has been elected president of the Cumberland Portland Cement Co. succeeding **Frank Pearson,** one of the founders who has retired from the presidency after 21 years as an officer.

**H. E. Swanson,** engineer with Unit Crane & Shovel Corp., Milwaukee, Wis., since 1939, has been promoted to consulting engineer with the firm, and **E. F. Reuter** has been named chief engineer.

**A ground breaking ceremony** took place at Armco's east works, Middletown, Ohio, recently, signalling the beginning of construction of two huge electric furnaces. Using the same historic silver spade which broke ground for the plant 37 years ago, an Armco official inaugurated the $3,000,000 construction project in a formal ceremony. The furnaces will be of the latest design, with rated steel-making capacities of 70 tons each. Construction is expected to be completed early next year.

**The Heil Co.,** Milwaukee, Wis., announces the appointment of **Walter "Mike" Carlson** as assistant sales manager of its truck body and hoist division.

**F. E. Reishus,** formerly manager of International Harvester at Sioux Falls, S. D. has been transferred to Lincoln, Neb., to succeed **J. L. Henn** who has retired. **E. R. Zimmerman** has been promoted to branch manager at Sioux Falls.

**To provide** an expanded and more fully coordinated service to steel consumers in the Chicago area, the Chicago sales units of Carnegie-Illinois Steel Corp. were combined July 1, 1947. The enlarged organization is directed by **Griswold A. Price,** manager of this United States Steel subsidiary's Chicago district sales office. Reporting to Mr. Price are **Edward W. Backes,** railroad industries sales manager, **John H. Morava,** manufacturing industries sales manager, and **George O. With,** construction industries sales manager.

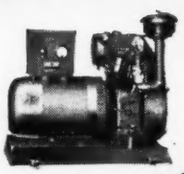
**Four new district sales representatives** of the M-R-S Manufacturing Co., Flora and Jackson, Miss., manufacturers of the Mississippi Wagon, have been appointed: **Thomas Q. Hathborn, Hollis H. McBride, Charles Robert Morris,** and **Harper Hughes Spragins.** All four men recently completed an intensive training course at the M-R-S factory and offices and in the field.


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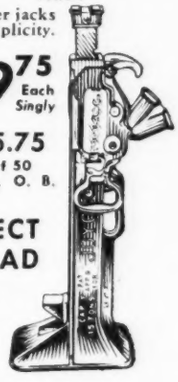
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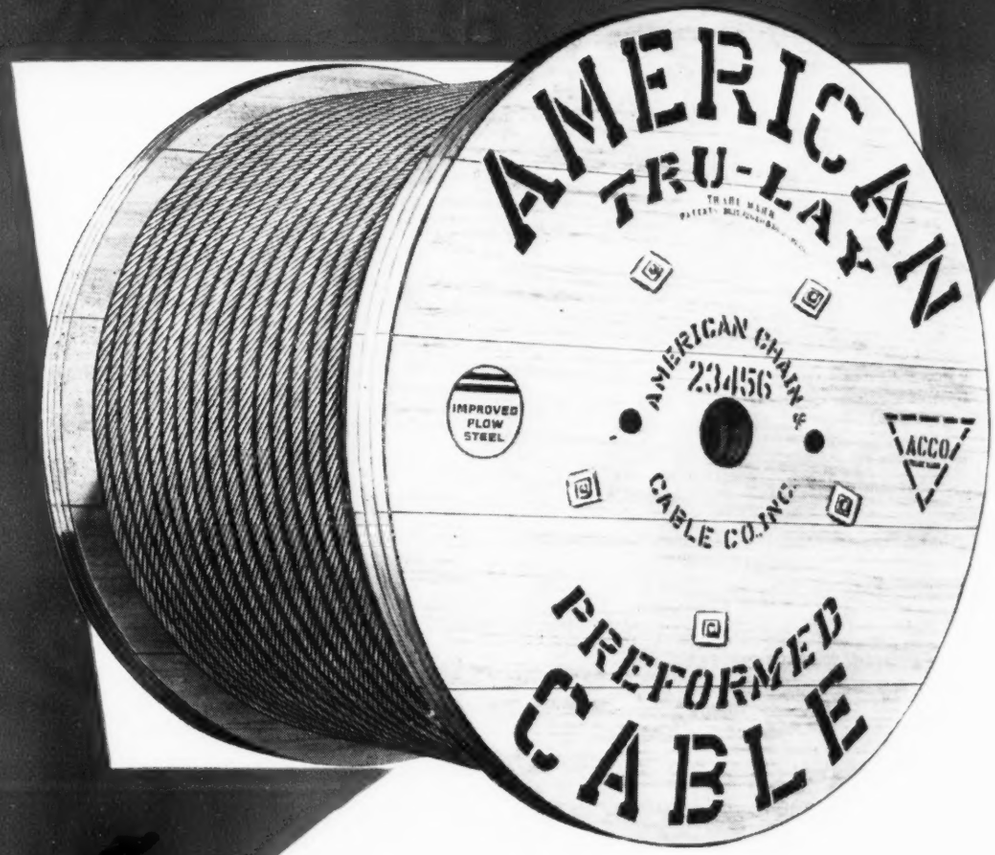
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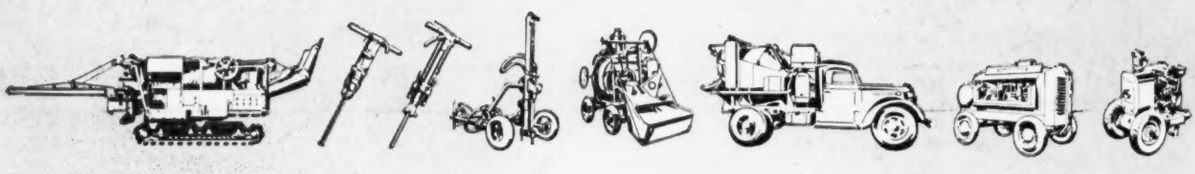
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